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Address.

THE NEWER VIEWS OF "CANCER," AND THEIR PRESENT RELATION TO THE "RESPONSIBILITY" OF THE PRACTITIONER.*

By EDWARD REYNOLDS, M.D., BOSTON.

THE last few years have witnessed the appearance of a widespread and general popular interest in "Cancer" as a public health question. Until the outbreak of the present war this movement was quite as active in the various European states, notably England and Germany, as in the United States and Japan. There is, in effect, a world-wide interest in this question. In the last few years there have sprung up in the United States alone nearly sixty organizations which are in one way or another devoting their labors to the solution of the cancer problem, and for the last two years there has been a national association, the American Society for the Control of Cancer, which has been endorsed by all the great medical associations of national scope and which is laboring to coördinate and consolidate the activities of all these many bodies towards the immediate reduction of the mortality from this disease by means of a generalized professional and popular campaign of education. Cancer has today the largest mortality of any disease of adult life, being in fact exceeded in its mortality only by the infantile diseases and

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by that of tuberculosis at all ages, and if, as is now believed, by far the greater part of this mortality is readily preventable, there is good reason for the public interest in the subject.

While our knowledge of the essential nature of the malignant diseases is still imperfect, the work of the last few years has developed changes in our views of their natural history, which are already revolutionizing their treatment. The leaders of professional thought have now generally accepted the newer views of the natural history and preventability of malignant disease, but it is only lately that their conviction has crystallized into the active teaching of these views which is now taking so prominent a place in both the professional and public press.

The laity are awakening to a widespread interest in them as is shown by the eagerness with which the daily newspapers are publishing "Cancer" articles, both well inspired and the reverse.

The profession are proving singularly apathetic to the movement, perhaps because it is always easier to impress a new point of view upon those who have had no previous acquaintance with the subject than upon the better educated who have long been adherents of an opposite point of view; but from whatever cause this apathy may arise, recent studies by many authorities have made it plain that the great mass of the profession have not abandoned the antiquated, nor assimilated the more modern, views of the natural history, prognosis, or curability of malignant disease, and have developed further the very curious fact that this backwardness is almost, if not quite, as prevalent among promi-

nent metropolitan medical practitioners as in the more remote districts. That the public should be accepting an advance more readily than the profession is far from a safe position for either the practitioner or his patients.

This paper has, then, two objects: an attempt to set forth in concise form the accepted points in the newer knowledge of malignant disease, and, incidentally to attempt to show, both by general discussion and by quotations from personal experience, that although these principles have been so universally accepted by the leaders of both pathological and surgical thought that they may today be regarded as assured, they, nevertheless, have not been as yet so generally assimilated by the great mass of the profession that a failure to have accepted them can be as yet considered as constituting that lack of the "common knowledge of the profession" which some of the laity now seem in danger of believing that it is.

The essential facts in our most recent view of the malignant diseases are, then:—

That they are at first strictly localized and during this localized stage are curable.

That there is no sharp line of demarcation between the benign and malignant new growths or ulcerations, but that the malignant often, if not usually, follow the benign and originate in them.

That while it is perhaps true that only a minority of even long continued benign neoplasms or ulcerations ever undergo a malignant change, such an occurrence is, nevertheless, so far frequent that every continued neoplasm or ulceration should be considered so far potentially malignant as to demand serious consideration.

That a heavy burden of responsibility always rests on any physician who declares that any new growth or ulceration which is brought to his attention is benign and therefore unimportant.

The most fundamental point in these principles (that the malignant growths and ulcerations are frequently secondary consequences of benign lesions and that consequently the benign can seldom be safely considered permanently benign) was on the point of realization fifty years ago. In support of this the reader may be referred, among other books, to Gross' once well known volume on "Tumors of the Mammary Gland," in which the clinical evidence for the transmutation of the benign into the malignant is quoted from a long line of his predecessors. The evidence was even then so overwhelming that this view would undoubtedly have shortly become the common property of the profession if the opposite view had not been adopted with great vehemence by a number of eminent pathologists. We can now perceive that these gentlemen were prejudiced in favor of the microscope and against anything but laboratory evidence. The sneering attitude which they and their successors adopted towards the opposing views unfortunately, for the time, carried the day, and as a result all the profession now in practice, with the exception of a few of the very youngest, were educated to a

firm belief that the benign, if once correctly diagnosed as such, must remain benign forever. This most unfortunate error has cost the lives of countless thousands and persists in the minds of the great mass of the profession even today, when there is perhaps no pathologist of authority who still adheres to it, and when the clinical evidence to the contrary has become overwhelming. Now that the contrary view has been for some years universally accepted by the surgical side of the profession, and especially since the laity is becoming generally imbued with it, it is of the utmost importance that its existence, as at least a probability, should be brought to the attention of every practicing physician, for his judgment upon it.

That the great mass of the profession still adhere to what all but the youngest were taught in their student days, i.e. to a belief that benign and malignant neoplasms and ulcerations are totally distinct phenomena, that they are to be distinguished from each other by a carefully outlined differential diagnosis, and that the benign cases will remain permanently benign and may therefore be neglected, has been of late repeatedly demonstrated. Among other evidence we may quote the following:—

The very active and excellent Cancer Commission of the Pennsylvania Medical Society collected statistics on 400 operative cases of malignant growths with the result of showing that in these cases the patient's physician had known of the conditions present, in superficial cancers for an average of one year, and in deep-seated cancers for an average of thirteen months before any treatment was undertaken. The commission remarks in its report that these results when tabulated were "somewhat startling."

An almost exactly similar result was obtained by a recent tabulation of 65 patients made in New York, and other similar statements have been made by almost every surgeon who has lately written on the subject. It is curious, too, that most of them remark that the failures to advise judiciously prompt action occur almost as frequently in metropolitan circles as in the remote districts where backwardness would seem more excusable. If this last statement be true, as I think it is, it is another point in favor of the belief that a failure to have as yet absorbed the modern views which may now be stated as accepted knowledge among specialists cannot as yet be held to constitute liability for "Failure to possess the common knowledge of the profession as a whole."

A recent review of personal records makes it seem, however, as though this were not the last word which should be written upon the subject. This review has indeed made it most clear that in this section of the country at least the degree to which recent advances have permeated the mass of the profession varies greatly, as between the several localities in which cancer is most frequent, and after careful consideration it has seemed that the most clear and comprehensive

way in which the subject can be presented is by a consideration of the malignant diseases under each of the four groups of organs in which they most commonly occur.

In a single brief article it is, of course, impossible to discuss the symptoms, diagnosis and curability of the malignant diseases in the many situations in which they occur less frequently. This paper will then be limited to their discussion under the heads of: Cancer of the Breast, Cancer of the Uterus, Cancer of the Digestive Organs, and the Cancer of the External Surface and Orifices of the Body.

The method adopted will be the presentation in brief form, under each of these classes, of the general principles which should govern the management of cancer in that situation, and the illustration of these principles by cases selected from personal experience, in so far as the extent of that experience renders this possible.

It must be promised further that the word cancer is here used in its popular sense and as a more convenient term than "malignant disease."

The cases used in illustration have been selected to show, both the very general failure of the profession to as yet grasp the fundamental points of our newer knowledge, and at the same time the principles which should govern their management. It will then be obvious that the names both of the patients and of the professional gentlemen by whom these patients were first seen must necessarily be omitted. They will, therefore, be reported only under the case numbers of the writer's clinical records.

BENIGN AND MALIGNANT TUMORS OF THE BREAST.

The breast is a locality in which carcinoma is extremely frequent. It is, furthermore, a situation in which early action is extremely important since secondary invasions into the axilla and sub-clavicular space, i.e. generalization of the disease and an unfavorable prognosis, occur very soon after the appearance of a malignant change in the original nodule.

It is perhaps the locality of all others in which disastrous delay is at present most often practised, and this probably because it is, of all localities, that in which the differential diagnosis between the benign and malignant growths had been in former days most carefully worked out and most generally taught. It is really that in which there is, in fact, least distinction between the benign and the malignant, and in which the origination of the malignant growths in masses which were evidently benign at the start is today most apparent.

It is, too, one of the localities in which the discovery of the new growths in their initial and harmless stage is most easy, and in which their removal while still benign is most easily effected without mutilation, and by trifling operations. It is, moreover, perhaps of all others, the locality in which the difference between the trifling

nature of these operations for the removal of a small mass, and the disfigurement of the extensive operations for the removal of established carcinoma is most distinct and apparent.

The general principles which should govern the management of new growths of the breast are:—

That all perceptible lumps in the breast, except the acute inflammatory masses in the nursing breast, should be regarded as potential carcinoma.

That all lumps in the breast which are evidently persistent should be at once removed, no matter how small they are or how evidently benign they may appear.

That in cases in which the patient is seen so soon after her detection of an apparently insignificant lump that it may be necessary to delay a little in order that the physician may assure himself of the certain presence and actual persistence of the mass, the patient should be seen at very short intervals, and the delay should be counted at most by weeks and not by months.

That he who delays more than a very few weeks before acting himself, or seeking expert advice, in the case of small and apparently, evidently benign new growths, or who delays at all in the case of larger and doubtful growths takes upon himself a responsibility which men of wide experience would not endorse.

Mammary lumps of benign appearance are sometimes unexpectedly malignant.

CASE 1. Private Records, Series B. 2938. A married woman of 48 was sent by a leading physician in another city, who stated in sending her that he had found a large uterine tumor, probably fibroids, which in his opinion demanded removal; that he had also found a moderate sized mass of apparently benign character in the left breast which he thought should also be removed; but that he thought the questions,—which tumor was the more pressing, whether either of them might be temporized with, and whether the patient could withstand the performance of both operations at one sitting, were intricate and grave. The latter course was decided upon. The fibroids were removed by hysterectomy in the presence of Dr. Wm. F. Whitney, who on section pronounced them to contain no malignant tissue. The left breast was the site of a mass about the size of a two-ounce bottle, movable, unattached to the skin, uniform in shape, and in short presenting every evidence of a benign nature. A Warren incision outside the breast was made in the expectation that the growth could be removed without disturbing the remainder of the breast and without mutilation. The greater portion of the tumor had been removed in this way when its upper portion proved to be far less movable than had been supposed and on submission of the specimen to Dr. Whitney it was found to contain two carcinomatous nodules of small size situated at distinct and well separated points of a hard, fibrous, and otherwise benign tumor. The necessary extension of incisions was at once made, the breast and pectoral muscles removed and the axilla and sub-clavicular spaces cleaned out. One axillary gland was enlarged, but

on section showed no evidence of new growth. After a lapse of nearly seven years there has been no recurrence and the patient is in the best of condition. She undoubtedly owes her life to an intelligent and progressive family physician, who urged her to an immediate operation within a few days of his first discovery of the condition. With two nodules of actual carcinoma, and an axillary gland already enlarged, it is probable that the loss of but a very short time would have put this patient in the hopeless class.

The case is quoted as an excellent illustration of the necessity for early operation in apparently merely benign tumors, and of the importance of having a pathologist present at the operation, for I think no sane surgeon would have added an extensive radical operation for carcinoma of the breast to a complete hysterectomy, without an actual microscopical demonstration of the presence of carcinoma in the breast during the progress of the operation. It is also an excellent illustration of the importance of prompt action on the part of the general practitioner.

A further general principle which for the sake of clearness was omitted on a former page, but which applies to all cases of malignant disease may appropriately be inserted here. Recent experience and statistics have shown clearly that the percentage of subsequent immunity is greatest when the microscopical examination of a specimen and the radical operation (if the disease is malignant) are both executed at the same sitting. It has been shown most clearly by statistical study that to permit an interval between the removal of a growth for microscopical examination and a subsequent radical operation increases the percentage of recurrence substantially.

It should, therefore, be a general principle that all operations for the removal of a portion of a doubtful growth should be done in the presence of a pathologist and with the patient prepared for a radical operation if his report is unfavorable.

Delay may convert an undoubtedly benign tumor of the breast into a most malignant growth.

CASE 2. Private Records, Series B. 3963. An unmarried woman of 36 was sent in by a leading medical practitioner of another city, a gentleman whom I have known for many years, whom I regard as one of the best general medical practitioners in Massachusetts, and whom I have seen exhibit in several other cases great clinical acumen and a most progressive spirit. He is in no sense a backward practitioner. He had known and attended this patient from her childhood; and when, a year and a half before I saw her, she came to him in a state of great agitation, stating that for a number of years she had known that her left breast was enlarged, and that she had recently discovered a lump, he made a careful and conscientious examination and assured her that the growth was benign and that she need not worry. His differential diagnosis was entirely justified by the characteristics

of the tumor, if such a diagnosis is ever safe. Under all the rules of practice which he had been taught and had applied all his life the position he assumed was the right one, but it happened that in his busy life and in spite of his progressive spirit and wide reading he, a medical practitioner, had not happened upon the latest surgical dicta about cancer of the breast. He saw her from time to time, and when at the end of a year it was evident that the growth was enlarging he told her that it would probably be necessary to remove it at some time, but that there was no hurry. He had not happened upon our latest advance of knowledge that a tumor once benign is not necessarily always benign. After a year and a half of observation he advised operation. There was at this time a diffuse mass centralized below the nipple and extending through a considerable portion of a large breast. For two or three months the patient had noticed a very slight serous discharge from the nipple which had from its start been slightly orange colored, and within the last few days had become slightly bloody. Firm pressure on the mass produced an increased flow of this fluid. It was nowhere adherent to the skin and appeared freely movable in all directions. It was diagnosed as a multiple cystic mass which had of late taken on a doubtful character. There was no evidence of enlargement in the axilla. A diagnostic incision from the nipple to the outer edge of the breast, made in the presence of Dr. Whitney, confirmed this diagnosis, and made it evident that small cysts would be found throughout the breast. The whole breast was removed and was submitted to Dr. Whitney. The operation was suspended while he made a prolonged examination of the specimen. In spite of his enormous experience in this class of cases, and for the first time in the writer's long collaboration with him, he refused to give a positive opinion, but recommended that nothing more should be done, his belief being strong that the growth was not malignant, and that it was for the patient's interests to take the additional risk of recurrence which would be involved in the postponement of the remainder of the operation for a few days, in case a pathological examination at leisure showed some malignant tissue, rather than to lose her pectoral muscles and axillary tissues at this sitting. After hardening the specimen and making serial sections Dr. Whitney found a nodule of carcinoma, and three days later at a secondary operation the pectoral muscles were removed with the axillary and sub-clavicular glands. The axillary glands proved to be extensively carcinomatous. The case is a very recent one and the patient is in good condition, but the prognosis is not good.

When a practitioner of the class of this patient's family attendant takes the course that he did, not carelessly or without thought, but after the exercise of his best efforts in a case in which he was deeply interested, it is evident that the day has not yet come when our recent advances have become the common property of the profession, or when the general practitioner can be held liable for lack of common care and knowledge if he counsels delay in the management of a case of benign tumor of the breast such as this case undoubtedly was when it was first seen; yet here is a case in which the patient was subjected to extensive mutilation and grave risk for the future, both of which might easily have been

avoided had she been made the subject of a minor operation at the time when she first brought the lump to the attention of her physician. It is further quoted as a case which illustrates most effectively the development of malignancy in a growth which was plainly cystic, was long existent, and therefore had been undoubtedly benign at the start.

The axillary glands in this case were extensively involved, and it is not probable that the three days' delay between the biopsy and the second operation was of any serious importance in this case, yet it is evident that as the case turned out it would have been better for the patient if the complete extirpation had been done at the first sitting. That the malignant tissue was so inconspicuous as to escape the observation of an unusually experienced pathologist until after prolonged search, makes it exceptionally striking as a transition case.

Any definite chronic lump in a breast should be removed while that is possible by a non-mutilating operation.

CASE 3. Private Records, Series B. 3883. Married woman, 41 years old, childless. Family history of repeated carcinoma. When first seen was complaining of abdominal discomfort and tenderness, with dysmenorrhea, and some pain in left breast during catamenia. All these symptoms were of some years' duration. On examination there was a probable small right tubo-ovarian enlargement, and a doubtful lump in the left breast. Under minor treatment improved considerably, and was recommended to return at short intervals for observation, but eight months later reported recurrence of catamenial discomfort with increased flow, and several inter-catamenial attacks of pain and flowing. Left breast more painful than before during catamenia. On examination right tube certainly quiescent, uterus certainly not enlarged, foul cervical leucorrhea, and a small but now for the first time distinct lump just outside the left nipple. Recommended dilatation and curettage and excision of mammary lump. At operation a week later the cervical canal was found so nearly impervious and the substance of the cervix so cirrhotic and brittle that an amputation of the cervix was judged safer, and likely to be more beneficial, than a dilatation—it was followed by a curettage. The lump in the breast being outside and below the nipple, was exposed by a small radiating incision and proved to be somewhat diffuse and ill outlined. A small pie-shaped section of the breast was removed. Careful palpation through the incision showing the rest of the breast to be free from trouble, and Dr. Whitney pronouncing the specimen non-malignant, the incision was closed. The subsequent microscopic report upon the breast was glandular proliferation with dilated ducts and acini. Diagnosis: diffuse glandular hypertrophy.

This patient's family history showed several instances of death from carcinoma. The removal of an abnormal cervix by a vaginal operation which probably involved less risk than the dilatation of a brittle cervix, not only removed abnormal tissue, but provided the permanently

good uterine drainage which will give her the best possible chance for the disappearance of one of those chronic irritations which it is always well to dispel. The new growth of the breast was distinctly benign but was of the class of diffuse, proliferative, benign new growths which, when they appear during the forties, are extremely well worth removal. Neither operation involved risk or disfigurement other than the linear scar in the breast. More time after the actual appearance of the mammary lump might have been permissible for observation, but the conditions were definite, and the loss of time, a week in bed and a week of convalescence, seems fully justified for prophylaxis.

The apparent initial delay of eight months was due to the two facts that at the first visit the evidence of the presence of a mammary lump was of doubtful force and that the patient failed to report in one month as she was directed to do.

It may be noted that when these small lumps in the breast are in the external or outer quadrants a radial incision is usually preferable, but that when they are so situated that the radial incision might be visible in evening dress they may be removed without disfigurement by the Warren operation, in which the incision follows the lower and outer edge of the breast and the mamma is separated from its underlying fascia and turned upward and inward, after which a benign mass in any part of the breast can be removed without further incision through the skin, the operation being in fact no more severe to the patient than that done through a linear incision.

CANCER OF THE UTERUS.

Uterine cancer occurs in two forms which have quite different characteristics both pathologically and clinically. The squamous celled cancer of the cervix originates, as its name implies, in the cervical portion of the organ and remains limited to the cervix throughout the earlier stages of the disease. It is ulcerative and excavative in character and undergoes extension through the lymphatics of the broad ligaments extremely early in its course. After this disease has once become definitely malignant the most radical operations yield comparatively few cures; on the other hand, while almost incurable when once established, it is yet extremely susceptible of prevention. It probably originates always in or about superficial ulcerations or erosions of the vaginal portion, and if all such lesions occurring in women over thirty-five or forty were efficiently treated while they are in this stage, we should have practically no cancer of the cervix. The main initial symptom, and perhaps the only distinctive symptom of this affection, during the benign, or as it is often called, pre-cancerous, stage is the existence of a leucorrhea, usually irritating in character and sometimes a little streaked with blood. This symptom is, of course, not pathognomonic of

cancer; it is in fact characteristic of all the irritative conditions of the cervix, the great majority of which would not develop malignancy; but the all important fact is that though all leucorrheas originating in middle life, are not the result of cancer, yet nevertheless all, or almost all, cancers of the cervix are preceded by such leucorrheas, and could be prevented from occurring by efficient treatment of those leucorrheas.

At the risk of repetition, we may then say again that if all such leucorrheas beginning in middle life were efficiently treated there would be practically no cancers of the cervix. Every case which presents this symptom should be carefully examined both bimanually and through a speculum, and the source of the leucorrhea accurately determined. In many cases the ulceration or erosion can be healed by minor treatment and in some cases will remain permanently cured, with consequent disappearance of the leucorrhea, but in a larger number of cases, and in all the more important cases, the trouble will recur within a short time after its relief by minor treatment. In these cases permanent relief can, however, be obtained by the appropriate plastic, which may be in one case the Emmet operation for lacerated cervix, in another the equally trifling operation of an amputation of the vaginal cervix, or in a third the enlargement of a narrowed external os and the institution of adequate cervical drainage by a Pozzi or Dudley discission. The relief to general health and discomfort afforded by these now trifling procedures is in most cases sufficient by itself to warrant their performance, if minor treatment fails of a permanent result; and they are far more than warranted by their efficient prophylaxis of cervical cancer.

Cancer of the uterine body presents a very different picture. It begins in the mucous membrane of the uterine body, usually as an adenoma, and often preceded by long existent glandular hypertrophy, it progresses somewhat slowly through the stage of adeno-carcinoma into fully developed cancer, but it tends to remain strictly localized within the uterus until a late stage in the disease, when it is usually disseminated by the protrusion and perforation of some portion of the disease through the peritoneum covering the uterus; after which secondary new growths spring up at separated spots all over the peritoneum, probably by the dissemination of cancer cells throughout the peritoneal fluid and their implantation and growth at spots determined by chance.

Cancer of the body gives a good prognosis after total hysterectomy throughout all the earlier part of its course, and a fairly good prognosis after the same operation, until it actually escapes from the uterus and becomes disseminated. Its onset is usually attended by the appearance in the earliest stages of a flow which is at first intermittent and scanty, later continuous and often large in amount, but which is throughout sero-sanguineous, until as the dis-

ease becomes extensive it usually becomes definitely sanguineous. When this discharge is present in typical form it is practically pathognomonic of adeno-carcinoma of the body. Unfortunately it is not always distinctive. As a result, no doubt, of some peculiarity in the localization or character of the growth there are not a few cases in which the character of the discharge is sanguineous from the start. Frank flowing in a woman of middle age must, therefore, be regarded as also suspicious.

The adeno-sarcomata of the uterine body, though much less common, have a very similar clinical history and may be included here under the general title of malignant disease or "cancer" of the body.

There is a common superstition which is widely prevalent among the laity and too common in the profession, to the effect that increased flowing at the menstrual period is a characteristic of the menopause and is harmless. There is, perhaps, no false belief connected with uterine disease which works more widespread disaster than this. The leading characteristic of the years which precede the climacteric in a woman with normal organs is a decrease in the amount of the catamenia. Any inter-menstrual flowing at this time of life is almost certainly the result of some neoplastic condition (including here the conditions usually grouped together under glandular hypertrophy of the mucous membrane); and though an increased flow at the normal time is not always neoplastic and may even disappear spontaneously, it is always the product of some abnormality in the organs, and is so often the first symptom of a new growth that it should always be regarded as a danger signal which demands attention and a careful diagnosis of its cause.

One other form of malignant disease must be mentioned here as being practically, if not strictly, uterine before we can summarize the general principles which should guide the practitioner in his management of the early stages of malignant disease of the uterus. A considerable proportion (not less than 20%) of those fibroids which first appear during middle life or which persist through the pre-climacteric or climacteric period undergo, sooner or later, a malignant degeneration, usually sarcomatous. Such fibroids should, therefore, be removed while still innocent.

The importance of increased flowing during middle life, and more especially of any recurrence of flowing after the menopause has been so far hammered into the profession for now so long a period of years, that, in this section of the country at least, the neglected cases which are still occasionally seen are usually the fault of the patient rather than of her family practitioner, the comparatively few cases where the family attendant has delayed action too long being usually cases of cervical rather than corporeal cancer. Too many general practitioners still fail to realize that since malignant disease habit-

ually occurs either within the substance of benign tumors or about chronic inflammations or irritations, no erosion or ulceration of the cervix which is seen in a woman of middle age can be safely pronounced benign and unimportant.

Every member of the profession ought to realize that an ulceration of the cervix which is plainly benign at the time he sees it may, nevertheless, become malignant in time, and should for this reason, if for no other, be treated and treated to a permanent cure, as surely as it is discovered. The comparative backwardness of the profession on this point in uterine cancer is undoubtedly due to the fact that its full realization has come to us only lately. It is but a comparatively few years since gynecologists in general have come to an active recognition of the principle that a benign irritation of the cervix cannot be trusted to remain permanently benign in a woman of middle age.

The general principles which should govern our management of incipient cancers of the uterus are, then:—

That while every irritating or blood streaked leucorrhœa in women in middle life is not necessarily malignant, every such leucorrhœa is so far suspicious of malignancy that it must be taken seriously, and demands an examination which should be pushed to the point of showing a satisfactory cause for the leucorrhœa.

That every erosion or ulceration of the cervix in a middle aged woman should be regarded as a possible source of cancer and treated for the prophylaxis of cancer.

That the milder lesions of this character may be treated by minor means, but that all the more severe of these lesions, and those milder ones which recur after minor treatment, should be treated by excision of the inflamed tissue.

That this should always be done in the presence of a pathologist, and with the patient prepared for radical operation if malignant tissue is found.

That all cases of marked increase of the catamenia during middle life should be regarded as suspicious, all cases of inter-menstrual flowing or of recurrence of flow after the menopause as highly suspicious, and all cases of intermittent sero-sanguineous flow as pathognomonic of cancer of the uterus.

That these symptoms are rendered more significant by the coincident existence of enlargement of the uterus, but are not necessarily negated by its absence.

That any such flowing demands careful curettage in the presence of a competent pathologist and with the patient prepared for hysterectomy in case an examination of the curettings shows malignancy.

That a negative result from the examination of the curettage relieves the operator of the necessity of performing a hysterectomy at that sitting, but does not warrant a positive or permanent diagnosis of a benign source of origin for

the flowing. This point is an important one and will be illustrated by cases.

That all fibroids or polypi occurring or persisting during middle life should be promptly and radically removed.

Benign growths of the uterus do not necessarily remain benign.

CASE 4. Private Records, Series B. 3356. A widow of 61 whose sister had died in this patient's house a little while before of a cancer which was recurrent six months after a hysterectomy, presented a small polyp protruding from the os. Under ether the cervix was split bilaterally to the internal os, when several additional polypi were seen hanging from long stalks, but evidently originating within the fundus. The internal os was dilated and the uterus very thoroughly curetted. The polypi and curettings were submitted to Dr. Wm. F. Whitney, who pronounced them wholly non-malignant. The patient was, however, urged to report every six months, which she did for about two years in normal condition. Three years and a half after the removal of the polypi she again had a slight show, and at once reported. The uterus seemed slightly enlarged. She was curetted in the presence of Dr. Whitney. Very little material was obtained and Dr. Whitney pronounced this negative, but the uterus was four inches deep. This fact in a woman of 63 with recurrent flowing, and whose uterus was known to have been small three years before seemed highly suspicious, and was thought to warrant an exploratory abdominal incision. Note her prolonged exposure to another case. This at once showed an enlarged uterus of soft and suspicious consistency and containing a number of small fibroids. It was removed by hysterectomy and was found by Dr. Whitney to be in the stage of infiltrating adenoma. There has been, of course, no recurrence.

The technical difficulties involved in procuring a complete examination of the mucosa by curettage and the examination of the fragments are such that a negative result is always unreliable. If the symptoms persist the curettage should be promptly repeated.

CASE 5. Private Records, Series B. 3409. A sterile woman of 53 had noticed for two years a profuse leucorrhœa, which had been lately increasing in quantity and had become bloody. Upon examination the uterus was not enlarged, but a foul and bloody leucorrhœa could be seen to escape from the os. Curettage was recommended, but she was not seen again for three and a half years, when she reported that she had been curetted and the curettings declared negative; that the leucorrhœa had not improved, had gradually become watery and slightly colored, but of late had been bloody. She said that the curettings having shown the case to be non-malignant, neither she nor her attendant had been worried, but that the discharge was now becoming annoying in quantity. On examination the uterus was found much enlarged and the discharge pathognomonic. Curettage brought away adenocarcinomatous material and a hysterectomy removed an adenocarcinomatous uterus, in which, however, the growth had fortunately not yet penetrated the wall. The case is somewhat recent but the prognosis is fairly good.

CANCER OF THE DIGESTIVE ORGANS.

Cancers of the digestive organs form an important and on the whole unfavorable group.

Cancers of the great digestive glands, the liver and pancreas, fortunately form a small proportion of this group as they can rarely at present be diagnosed while in a condition which offers any great hope.

The more common seats of this group of cancer are in the stomach and large intestine. The great majority of all cancers originate about chronic ulcers, and if all chronic ulcers of the stomach were promptly healed or excised the malignant diseases of the stomach would be greatly decreased in frequency, if not done away with. Not all ulcers can be healed without operation, and while duodenostomy for the relief of gastric irritation and the excision of a portion of the stomach for the removal of a benign ulcer are no longer operations which carry a large mortality, they are still far from trifling operations; they certainly cannot today be placed in the class with removal of small lumps in the breast as trifling procedures which should be performed as a routine for the prophylaxis of cancer. Each case of this character must be treated on an individual basis, but the general principle which should govern their management is undoubted; if every case of gastric indigestion in a middle aged person which proves to be annoyingly persistent and resists ordinary methods of treatment were regarded as suspicious of cancer and subjected to diagnosis by the most careful methods of physical examination, including analysis of the stomach contents and the bismuth x-ray used with a series of instantaneous exposures, there would be an immediate reduction in the number of deaths from cancer of the stomach. These methods of examination are as yet far from perfected. They require the use of elaborate and expensive apparatus, and in special such x-ray plates as are demanded for this purpose cannot be obtained by the ordinary office outfit, or indeed by any one but an expert Roentgenologist. Their interpretation is difficult and usually demands consultation between medical and surgical experts. Each case is a problem by itself and a problem for serious study. Probably all that can be demanded of the general practitioner today is that he should realize the possibility that any case of persistent indigestion in a middle aged person, especially if attended by loss of weight and change of color, may often mean the beginning of what may in the end become a malignant process; and that the patient has a right to be warned of this and to take advantage of the excellent chance of escape which is afforded by such expert study of the case in the early stages.

Cancer of the intestine is most common in the lower intestine, and is there most common in the sigmoid and rectum. In this last situation there is, under modern methods, a good chance of its detection while in the early stages. In the other

parts of the bowel it is rarely detected before it has become definitely malignant, and but seldom while it is susceptible of successful radical removal.

The early symptoms of a new growth in any part of the colon are persistent constipation with consequent indigestion and brownish discoloration of the skin, usually some loss of weight, and as a rule sense of weight in the pelvis and some straining at stool.

Lack of space must prevent discussion here of most of the somewhat intricate problems involved in the diagnosis and surgical treatment of cancer of the colon in its several situations, and that of the lower portion only will be selected for illustration.

Cathartics and enemata do not produce satisfactory results, and though in cancer of the upper part of even this region the habitual motions often consist of large well formed feces, yet after the use of cathartics, *i.e.*, after the rectum is emptied and the feces begin to come down from above, ribbon feces may often be detected. Slight rectal bleeding or streaking of the feces with blood may be observed in the early stages, either as the result of hemorrhoids secondary to the constipation and indigestion, or from irritation and bleeding of the mucous membrane at the point of obstruction.

It will be observed that no one of these symptoms is pathognomonic of a new growth. The whole symptom-complex is merely that of moderate obstruction in the lower bowel, and may be due to any one of many causes.

An actual differential diagnosis between obstruction due to a malignant growth and one which is the product of some other mechanical cause can rarely be made by any method, and the differential diagnosis between the benign and malignant new growths can never be established in the early stages. The utmost that we can expect is the detection of an actual mechanical obstruction in this region; when the strong probability which always exists in middle aged people that such an obstruction is due to actual or potential malignancy must always be an element in the determination of treatment. In some few cases after thorough emptying of the bowel by the persistent use of cathartics and enemata, it may be possible to distinguish a mass by combined recto-abdominal, or in women recto-vaginal-abdominal palpation under anesthesia, but this is rarely possible in the early stages. It is, moreover, a safe general principle that benign new growths of the intestines usually, and persistent localized inflammations with thickening of the walls amounting to obstruction frequently, become in time malignant if left undisturbed.

The diagnosis of actual mechanical obstruction with or without a probability that the obstruction is due to a new growth of some nature can usually be established by the use of the bismuth x-ray and can frequently be confirmed by the proctoscope, which under modern technic

can often be made to explore successfully the whole of the sigmoid, and in some cases the descending colon.

The conditions of these cases are such that the problem involved is an essentially surgical one, yet the hopeful part of the surgeon's problem can only arrive when the patient or the original attendant has recognized the possibilities early, and the necessity of the patient's taking the decision in the case must usually make it necessary that the family attendant should take his full share in the discussion of the possibilities, hence it is important that the general practitioner should be familiar with their general outline.

The surgical problem presented by new growths of the rectum and sigmoid, whether they are detected in the benign or malignant stage, is never an easy one for either the patient or the surgeon. In a very large proportion even of the ultimately successful cases, the operation involves at least a temporary colotomy and its subsequent closure. In most new growths, and in all malignant growths, of the rectum or lower sigmoid the operation is best done in two stages, and if the growth is in the rectum or extreme lower end of the sigmoid it can but seldom promise any better ultimate result than a permanent colotomy with the discharge of feces through an artificial anus in the abdominal wall. Nothing but the dreadful suffering which attends death from cancer of the rectum can be worse than the condition of the patient who has a permanent artificial anus and the possibility of a recurrence of the disease below.

Even in the exceptional cases in which a benign or early malignant growth of the sigmoid is so situated that it can safely be removed by resection, and that the divided ends of the intestine can be brought together without undue tension, the operation is one which involves a large mortality. The death from cancer of the rectum or sigmoid is, however, one of such great suffering, and the last stages of life so frequently demand the formation of an artificial anus for comparative euthanasia that the risks involved in a resection are well worth taking whenever that operation is possible, and an exploratory abdominal incision on the chance that the growth may be removable, and the possibility that it may be removable without a permanent artificial anus, is probably wise in any case in which a tumor of the rectum, or more especially of the sigmoid, has been detected.

In the writer's opinion the general principle of the management of such cases should be that the patient should be given a full explanation of all the circumstances of the case with the arguments for and against operation fairly and lucidly set forth, and should be allowed to make his own decision. No other course can safe-

guard the patient and his family from unavailing regrets or the surgeon from sharp criticism.

CASE 6. Private Records, Series B. 3781. A single woman 38 years old. Had been operated upon eleven months before by a first class metropolitan surgeon whom she had consulted for dysmenorrhea, difficult defecation, and bearing down pain in the pelvis. He removed an ovarian cyst only to discover a new growth in the rectum. He excised a section of this growth and submitted it to a competent pathologist, who pronounced it benign. The patient and her family gathered from him the impression that the growth was harmless and would require no treatment. The patient's pain was not relieved by the operation but increased in severity. The family, in consequence of the impression that they had gathered from the surgeon, believed her pain to be hysterical and insisted that if she would pay no attention to it it would disappear. She was sent to a neurologist, who after a time became convinced that the pain was organic in origin and recommended another opinion. The touch revealed a large retro-uterine mass compressing the rectum. The proctoscope and the x-ray added confirmatory evidence of its rectal situation, extent, and probable malignant character. The patient's pain was evidently unendurable, and even when the desperate nature which would now characterize any operative attempt to relieve her had been fully explained to her, she demanded operation, on the ground that the barest chance of relief was worth anything that she might have to go through, and that death from operation was preferable to her existing pain; her only stipulations being that the operation should be the most radical possible and that she was willing to take any and all risks. An incision demonstrated the absolute impossibility of any removal of the growth, but a portion was excised and pronounced carcinomatous, and a colotomy was done for the relief of the incessant rectal tenesmus. Fortunately for the patient she failed rapidly after the operation and died in forty-eight hours.

From the rectal situation of this growth it is probable that even while it was small and benign an operation for its removal would have involved the establishment of a permanent artificial anus, and the surgeon who found an operation for the removal of an ovarian cyst complicated by the presence of such a tumor of the rectum, would probably have been unjustified in subjecting the patient to the great risk and grave mutilation involved in so extensive an operation without giving her a chance to decide upon it herself in advance; but had she been informed of the probability that the persistence of this small growth in her rectum would probably in the end expose her to the suffering involved in a death from cancer of the rectum, she would certainly have been carefully watched, and would have made up her mind at leisure upon the choice between the two alternatives offered, at a time when the radical operation would have offered her at least a chance of life, and of relief from suffering.

Her family would have been spared much self reproach for having urged upon her that her undoubtedly intense pain was hysterical. The surgeon concerned would have escaped very severe criticism.

Where the tumor can still be regarded as fairly benign the possibility of complete functional cure, as opposed to the inevitable suffering which results from the development of malignancy, should never be ignored in making the decision.

CASE 7. Private Records, Series B, 3926. A single woman of 60. Had had occasional abdominal pain for seven years. Hemorrhoids for three years and of late urinary frequency. Palpation of the abdomen developed the presence of an enormous amount of feces in the descending colon and sigmoid, rendering further examination useless. A week of hospital treatment with catharsis and enemata emptied the colon, with the production of unusually large quantities of feces. Examination under gas developed the presence of a small nodular mass, movable in the pelvis and probably intestinal in situation. The proctoscope was arrested at a spot which was believed to be in the lower sigmoid and to represent a narrowing of the lumen of the gut with somewhat reddened mucous membrane. The patient had lost weight and flesh, and the skin showed marked brownish discoloration, but cachexia was not marked and the constitutional condition was not worse than could be explained by constipation and the retention of feces. The diagnosis was neoplasm of the sigmoid, character uncertain. An abdominal incision showed a new growth involving about eight inches of the gut at about the junction of the sigmoid and rectum. Careful search showed no secondary nodules. The affected portion of the gut was removed and submitted to Dr. Whitney, who pronounced that it was benign and consisted of a portion of gut with much contracted lumen, and its walls thickened by numerous small diverticula surrounded by inflammatory induration. The conditions were extremely unfavorable for an end-to-end anastomosis and the ends of gut were too short to permit of a lateral anastomosis without unsafe tension. It was, however, possible to bring both ends of gut into the abdominal wound and fasten them there with stitches and forceps. The patient made a prompt convalescence, the resulting spur was divided by force-pressure, and after somewhat prolonged and unsuccessful attempts at closure of the abdominal fistula by granulation, the abdomen was re-opened and both ends of gut having become much elongated, and moreover extensively adherent to each other as the result of the force-pressure, closure of the remaining portions of their walls by suture proved easy and to leave a good lumen. The subsequent progress of the patient was satisfactory and her prognosis is of the best.

CANCER OF THE ORIFICES AND EXTERNAL SURFACE OF THE BODY.

Such lesions as cancer of the tongue, cheeks and lip illustrate well the origin of malignant disease in chronic irritations.

Every one knows the chronic cankers of the tongue and cheek which result from the digestive action of the saliva upon some slight abrasion of the mucous membrane. Almost every individual has experienced their presence. They are usually of but a few days' duration and are harmless; yet it has been for long well established that cancers of the tongue and cheek originate almost invariably in such simple ulcers (common canker), which instead of disappearing spontaneously in a few days as they should do, are kept open for weeks or months by the unrelieved presence of the rotten or ragged teeth or other mechanical irritation which originally produced them.

Cancer of the lower lip has been long and classically recognized as the product of the irritation caused by the long continued irritation of a hot or rough pipe stem against a given spot on the lower lip in inveterate smokers. Cancer of the larynx (cigarette cancer) is the product of continued irritation of the vocal cords by the inhalation of tobacco smoke with incessant frequency. Cancer of the skin, though usually slow in becoming generalized, always originates either in some chronic crack, or from chronic irritation in the substance of some long persistent wart or mole.

The general principles which should govern the prophylaxis of all such growths is that care should be taken to promote healing of any crack or ulceration about any of the orifices of the body, and that any persistent wart or mole which is observed to increase in size, or change in appearance, after its possessor is reaching middle age, should be promptly removed either by the knife, a freezing mixture, or by the use of radium or the x-ray (which are here probably curative) before they undergo any definite malignant change.

The general principle that there is no sharp line between the benign and the malignant, but that the malignant usually arises from the benign is here, as everywhere, perhaps the most important item in the newer knowledge of malignant disease.

The cases used were selected in most instances not only in illustration of the most important of the principles involved, but also as evidence of the present position of many of the profession in relation to them. It seems clear, not only from personal experience, but also from the studies of others as reported in recent literature that all the more modern views of the natural history and principles of management of malignant disease are not as yet the "common knowledge of the profession." It seems clear also that it is important both to the public and to the profession itself that they should become "common knowledge" as rapidly as possible.

Original Article.

THE SURGICAL TREATMENT OF CANCER OF THE CERVIX UTERI.

BY FARHAM COBB, M.D., BOSTON,

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IN 1912¹ and again in 1914² articles by me on Cancer of the Uterus were published in this JOURNAL and I welcome the opportunity to review my previous conclusions and to incorporate in the present paper the results of an added year of work.

I am able to analyze a series of cases from 1900 to 1914 inclusive, fifteen years, at the Massachusetts General Hospital, 420 in number, 98 of which were personal cases of my own. During the past year I have improved upon my original technic in the operation of hysterectomy, and, also, have devised and performed a new operation for the removal of the uterus, vagina and rectum in those cases in which the disease has invaded the posterior vaginal wall and recto-vaginal septum, cases hitherto considered inoperable. I have continued to add to the series of cases in which I have tied the internal iliac arteries as a palliative measure in the advanced cases, and, during the last six months, have had some experience with the elaborate and valuable method of Dr. James F. Percy³ of Galesburg, Ill., in the use of the actual cautery.

I wish again to emphasize the importance of early diagnosis of cancer of the cervix and to prove that the radical abdominal operation does cure a large percentage of cases and carries with it in skilled hands no excessive primary mortality.

In discussing the radical operation and the late results, the cases of cancer of the cervix have been separated from those of cancer of the body of the uterus because cancer of the fundus is a comparatively favorable form for cure by a simple hysterectomy. The important part of our work from an educational point of view is concerned with this form of uterine cancer. Wertheim's⁴ reported cases are cancer of the cervix.

By radical operation is meant substantially the Wertheim abdominal hysterectomy with certain modifications of my own. This consists of the removal of the uterus and a liberal portion of the vagina and as much of the parametrium as possible through a median abdominal incision after ligation of both internal iliac arteries; the regional lymphatic glands being removed only if enlarged to sight and palpation. This is a difficult and tedious operation and the profession and public must be made to understand that it should be done only by specially trained men. When done by such trained men it should carry with it an immediate mortality of not over 15%.

I have been interested in the radical abdominal operation for cancer of the cervix since 1901, and up to June 1, 1915, have done the extended abdominal hysterectomy 42 times, 31 cases at the Massachusetts General Hospital and 11 in my private work. My immediate mortality at the Massachusetts General Hospital has been 16.1%, in my private clinic 9%, an average immediate mortality of 12.5%.

In this time, out of the total 420 cases of cancer of the uterus, both cervix and body, at the hospital there were performed by the different surgeons 152 hysterectomies of all kinds. The difficulties of securing final information in such a large number of cases has been great, especially in the hospital cases. I feel considerable satisfaction, however, in that out of 116 cases surviving hysterectomy all but 10 have been traced. I have not lost track of any of my own cases, and can report a gratifying percentage of cured cases which will be given later in detail.

There is an appalling lack of operability in the cases presenting themselves, especially at the hospital clinics. While education of the public and the medical profession in regard to the importance of early diagnosis may increase the percentage of operable cases, the insidious onset of this terrible disease will always militate against a certain percentage of the cases coming to the surgeon in time to be cured by radical operation. There is urgent need for education on cancer of the cervix. Over three-fifths of the patients presenting themselves at hospitals, and this is true of the Massachusetts General Hospital, come too late for any attempt at a radical cure, and over three-fourths of those operated on by surgeons not especially experienced in the radical operation die inside of five years. This is due to popular ignorance as to the nature of the disease and its insidious onset, to the neglect of medical practitioners to examine their cases or to recognize the importance of conditions found upon examination, and also to the lack of knowledge on the part of many surgeons as to what is an operable case.

Our efforts to educate the community should be unsparing. A publicity campaign has been carried out to a certain extent by the committee of the American Medical Association in the last two years, but in the last year at the Massachusetts General Hospital it is a fact that the percentage of operable cases was less than any year before in spite of our selective system and attempts to educate the community.

Of the Massachusetts General cases, 4 refused operation, 63 were totally inoperable, 201 could have only a palliative operation; 152 had some form of hysterectomy. In other words, 264 cases came too late for cure, an operability of 36.1%. According to Wertheim's latest statistics 50% of his cases were operable.

Palliative Treatment of Advanced Cases. It is a duty in every case where a radical operation cannot be done to make repeated efforts for pro-

longing life and the checking of pain and hemorrhage. Much too often these advanced cases are neglected and allowed to die without much being attempted for their relief.

The use of the actual cautery with ligation of the internal iliac and ovarian arteries will prolong life for many months and stop pain and hemorrhage. The method of using the cautery should be that devised by Dr. Percy. Previous to becoming familiar with Dr. Percy's work I had been ligating the internal iliac arteries and then using the old-fashioned method of curetting away the disease and charring with a cherry-red cautery iron.

In my experience, ligation of the iliac and ovarian arteries alone is a valuable means of stopping pain and hemorrhage. This method, which I first thought original with myself, was previously done, however, by Charles Ryall,⁸ surgeon to the Bollingbrooke Hospital and Cancer Hospital of Brompton, England. He has reported over twenty cases of ligation with decided benefit and no complications.

Including the cases done by the Percy technic in the last four months, I have tied the internal iliac arteries in 23 cases, with no immediate mortality. In one case, in which enlarged iliac glands were adherent to the vessels, I tore the internal iliac vein, but was able fortunately to apply ligatures above and below the tear. Slight pain and swelling in the extremity followed, but disappeared in two weeks.

My method is, through a median incision, to ligate the ovarian arteries, then open the broad ligaments and identify the ureters and vessels and gently separate the internal iliac arteries from the underlying veins, pass the ligature carrier away from the veins and ligate the arteries with silk. Theoretically, by this method the blood supply to the uterus is reduced and the malignant growth starved.

In my last paper on this subject I gave an abstract of two cases in which ligation of the internal iliac arteries had been done, to illustrate the relief from pain and hemorrhage.

I have come to believe that curetting should not be done because of the chance of forcing cancer cells into the lymphatics. Everything that can be done with the curette can be done by the cautery. Years ago Byrne⁶ in his valuable work said that the cautery itself probably has a positive influence in checking cancer growths much deeper than the surface actually cauterized. In other words, there is hardly any doubt that the developmental activity of the cancer cells is arrested and destroyed at a distance remote from the surface upon which the cautery is used. This is the theory upon which Percy has based his work. According to Percy a temperature of 113° F will kill cancer cells, while normal tissue cells will stand from 130 to 140° F. In his cautery and special water-cooled specula and his method of using them he has made a very valuable contribution to the treatment of cancer of the cervix, especially in

its later stages. Percy himself believes that his method may supersede the radical operative treatment in all cases, but states that it is too soon to prove this by statistics of his cases. Briefly, his method is as follows: He opens the abdomen in the median line and ties both internal iliac arteries and the ovarian arteries. After this, with his assistant's hand in the abdomen, over the uterus, he uses through a special water-cooled vaginal speculum for from thirty to fifty minutes his special cautery at a low temperature, what he calls a "cold iron," the heat of which is not sufficient to char or carbonize the tissue, about 125° F.

From seeing Percy's own work, assisting him at operations, and from using his instruments and technic myself I have come to the following conclusions: that his method is the method of choice in treating border-line and advanced cases of cancer of the cervix; that it is too early to pass accurate comparative judgment upon the value of his method in prolonging life as contrasted with former methods, and especially as to the curative value of his technic as compared with the radical hysterectomy. Time is necessary to decide this, several years yet.

I believe, as before, that in the earlier stages of the disease the extended radical hysterectomy is the method of choice, that in the advanced cases we must use the Percy method because by this we can give the most thorough application of heat with the greatest factor of safety and probably the greatest palliation. In other words, in these advanced cases we no longer have any right to use the old fashioned method of curetting and cauterization, and must offer our patients Percy's technic. Also, I believe that the moderately advanced cases which we have operated on radically in the past, should have the Percy treatment first and later the abdominal hysterectomy.

The cases in which I have used this method have had little pain and discomfort and surprisingly little sloughing and foul discharge following the long application of heat. They have been done too recently to enable me to form any conclusions in regard to the progress of the disease.

I want to emphasize the fact that the Percy operation is to be judged only from a series of cases operated on by men who *understand* the technic. It is not to be done by unskilled men and there is danger in its *indiscriminate* use of depriving certain women of their chance of life by radical operations. It is not a *cure-all* in cancer of the uterus, but has an undoubted value in selected cases.

S. M. Clark,⁷ professor of gynecology in Tulane University, New Orleans, has published a preliminary report of his experience with the Percy method. He has had 25 cases of all kinds. He does not feel that the Percy method will supplant the radical operative treatment except in the borderline and advanced cases, but he has used it as a preliminary step in his radical op-

erations. After he has opened the abdomen he has introduced the cautery well into the uterus and raised the temperature to a point where it can barely be tolerated by the hand over the uterus, maintaining the heat from ten to twenty minutes. He thinks that by so doing he may kill some cancer cells and diminish the chance of implantation metastasis.

I quote his conclusions: "Finally, as yet no true end results can be deduced from my cases, but from the temporary results obtained we feel encouraged and believe that in Percy's elaborate heat method a definite advance has been made in the treatment of cervical carcinoma, and not only is it a most valuable agent in managing advanced carcinoma, but when combined with the extensive removal of the uterus our percentage of cures will be, as we hope to show in a subsequent report, definitely improved."

This method of cauterization can and often should be repeated several times in individual cases. Percy states that he has opened the abdomen and used the cautery according to his technic, four or five times in certain cases. The need or usefulness of so many abdominal incisions is to my mind debatable. Clark also feels in doubt about this.

Between cauterizations it is to be remembered that some good can be accomplished by local applications to the cervix and vagina,—acetone, formalin or iodine. The value of radium is uncertain, but in cases in which this treatment can be obtained it should be tried. My own preference is for vaginal douches of formalin 1 to 1000 and the application of formalin 1 to 200 locally through a speculum.

What Cases Should be Operated Upon Radically? If the entire pelvis is filled with a hard mass, the uterus firmly fixed and the vagina markedly involved, no one can have any doubt but that such a case is inoperable, but there are numerous cases in which no bimanual examination, with or without anesthesia, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in the pelvis are not infrequently due to inflammatory tissue, adhesions, pus tubes or cysts. In such cases an exploratory laparotomy is necessary to settle the question of radical operation, and since the Percy treatment to be successful demands opening the abdomen, if the case is determined inoperable, the conditions are favorable for applying his treatment with heat. After opening the abdomen, before deciding the question of operability, a thorough survey of the glandular conditions is necessary, and it should be understood that to do this properly the peritoneum must be split and the great vessels laid bare, for in no other way can it be determined accurately whether the glands are pathological. If numerous and large nodes are felt, especially in the sacral chain, the radical operation is inadvisable and the Percy operation should be chosen. Moderate involvement of the iliac and obturator groups does not

contra-indicate an extended hysterectomy. Cases in which the sacral and inguinal glands are involved are absolutely unfavorable. Enlarged iliac glands are not necessarily cancerous by any means.

Even if fixation and induration in the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy, because it is certain some of the apparently desperate cases, even those involving the bladder, can be cured. Of Wertheim's cured cases there were no less than ten that had been considered inoperable by very worthy men. In nine others the wall of the rectum was involved, and in six others the bladder was so fixed that its loosening was very difficult. In several others the parametrium was so widely infiltrated that in separating it from the pelvic wall it gave the operator the impression that he was cutting through cancerous tissue. One of my own cases that has lived longest free from recurrence,—namely, fourteen years, was a case in which the left ureter had to be dug out of a mass of apparent disease in which the iliac glands on both sides were markedly enlarged and were removed but were not cancerous. This is the case of Elizabeth C., W.S., vol. 369, page 120. In her case there was marked thickening and induration in the left broad ligament noted before operation. One other case of mine in which the uterus was fixed and both broad ligaments indurated, is alive and well over six years after hysterectomy. Case of Rose S., E.S., vol. 620, page 105. I have operated on three cases previously operated on palliatively by other men. In each case I have found it possible to do a radical operation; in two of them the bladder was opened and successfully repaired. One died of recurrence, one year, eight months and nine days afterwards; the other two are cured. The border-line cases, however, which are most difficult of operation and in which the chances of immediate mortality are great and the probability of rapid recurrence almost certain, should be treated by the Percy method.

The general condition of the patient must be considered carefully in deciding upon the operation, and the long, tedious and frequently bloody abdominal operation should never be attempted in feeble subjects. It is contra-indicated, also, in the presence of marked adiposity. In such cases vaginal hysterectomy or the Percy operation should be substituted. In certain of the adipose cases it may be possible to do a paravaginal or radical vaginal hysterectomy, the operation of Schuchard² and Schauta.³ My own experience has convinced me that the Wertheim operation in very fat women is one of extreme difficulty and risk. One of my fatal cases was that of a very fat woman in whom a vaginal hysterectomy was impossible on account of the inability to pull down the uterus because of firm intra-abdominal adhesions subsequent to a previous laparotomy. Death resulted from general peritonitis.

Thorough Pathological Examinations. The most favorable cases for cure are those in which the diagnosis of cancer is made early by the microscope. Unless great pains are taken, pathological examinations of tissue from suspected areas may fail to discover the disease. Possible sources of error are depending upon curetting without excising pieces, failure to obtain tissue from the diseased region, and especially incomplete study of the disease after removal. Wedge-shaped pieces should be cut from more than one place on the suspicious cervix, should involve the area of granulation tissue and the normal mucosa adjoining, and many serial sections should be cut and examined with care.

As stated in one of my previous papers as an illustration of the possibility of error, there were three cases in our hospital series in which no operation was done because the pathological reports were, in one case, "blood clot"; and in two, "simple glandular hypertrophy." All three of these cases died of typical cancer of the cervix clinically.

Technic of the Extended Abdominal Hysterectomy. The most important factors in the operation are:—

Anesthesia.

Abdominal incision.

Handling of the ureters.

Control of hemorrhage.

Removal of the parametrium and glands.

Prevention of peritoneal infection and implantation metastasis.

In my previous papers I have described some original technic by which I thought the Wertheim operation would be even more radical and perhaps somewhat safer, referring especially to the combined method of spinal and ether anesthesia, abdominal incision, the retraction and elevation of the ureters by tapes and the ligation of the internal iliac arteries. My work during the last year has caused me to modify my technic but little, with the exception of the use of the Percy cautery in the preliminary preparation of the patient (as the first stage of the operation).

Preliminary Preparation. Under this heading is to be considered the general preparation of the patient and also the preliminary preparation of the vagina. Especial attention should be paid to the condition of the heart and kidneys, and the functional renal test should be done with care more than once. A percentage of twenty-five prohibits a radical operation.

Since the introduction of the Percy method it should be stated that *all* cases on which a radical hysterectomy is to be considered should have the Percy method to a certain extent used before the hysterectomy. The important thing to decide is what cases should have the cauterization and the hysterectomy done at one sitting, and, on the other hand, what cases should have the thorough Percy treatment for the maximum time limit for weeks before the hysterectomy. It

is possible that time and further experience will change my present views. I believe now that curetting should never be done, but that the diseased areas should be destroyed with the cautery. In early cases where the area of the cervical disease is small, the method of Clark previously described in this paper, of destroying the diseased area and then inserting the Percy cautery well into the uterus and leaving it from ten to twenty minutes before going on with the abdominal technic is the desired method, and that in the more advanced cases in which there is a moderate or a large amount of proliferative disease, that the complete Percy method should be used for a considerable period of time before the hysterectomy. How long one should wait before doing the complete operation after the Percy treatment is problematical and will differ in individual cases, depending upon the amount of sloughing and vaginal discharge. Usually about one month is needed. Theoretically the completed operation should be done just as soon as possible after the Percy treatment, just as soon as the offensive vaginal discharge has cleared up. Such cases should be treated after the cauterization with strong formalin douches, 1-1000 twice a day and the direct application of strong formalin packs.

I believe there are no cases in which my previous method of doing hysterectomy, even in the early cases, without the use of the cautery can be defended. The cautery should be used in every case, remembering the theory of heat and its influence in destroying cancer cells at a distance remote from the surface. The operator must decide in each individual case whether it is better to use the modified Percy treatment for a short length of time immediately preceding the hysterectomy, or the extended Percy method and the delayed hysterectomy. The decision will be influenced by the extent and exuberance of the disease and the amount of hemorrhage, sloughing and foul discharge.

The preparation of the vagina subsequent to cauterization or in any case in which hysterectomy is to be done, should be by tincture of iodine and alcohol. The vagina should be filled with the iodine and this should be allowed to remain for two minutes. After wiping this out with gauze sponges the vagina is filled with alcohol, pains being taken afterward to wash out the alcohol with bichloride solution.

Anesthesia. During the last year I have continued to use in every case the combined spinal and ether anesthesia as described in my last paper. I am more than ever convinced that this method is of great value in preventing shock.

An intra-spinal injection of from 1-2 c.c. of tropacocaine, 5% with suprarenin, is given between the second and third lumbar vertebrae. This injection is used as a "nerve bloc" on the theory advanced by Crile, the idea being to shut off the nerve irritation from the extensive manipulation in the pelvis from the higher centres. Ether is given at once after the spinal in-

jection and continued through the operation. In my last paper I showed charts illustrating the entire absence of shock by this method. The preparation of the vagina and the use of the cautey can be begun immediately after the spinal injection. Half an hour before the anesthesia morphine grains $\frac{1}{4}$ with atropine gr. 1-120 is given hypodermatically.

I have yet to have any experience in the use of spinal anesthesia in the complete Percy method, neither have I attempted a hysterectomy under spinal anesthesia. Wertheim states that he has done the hysterectomy under spinal anesthesia in 33 cases. It may be said that the duration of spinal anesthesia is too short for the proper performance of the hysterectomy. It is my intention to use the spinal anesthesia to a certain extent in the Percy method.

The Incision. The satisfactory completion of this operation with wide removal of the parametrium and upper portion of the vagina necessitates a generous exposure of the pelvic field. The incision should be in the median line and should go down into the symphysis and always must be carried above the umbilicus. I have in most cases adopted a modification of Gibson's method of operating for low ureteral stone, namely, cutting across the anterior sheath of the recti just above the symphysis. This alone gives appreciably more room. In obese cases I do not hesitate partly to divide the tendinous insertions of the recti muscles. It is a relatively easy matter to repair the recti by mattress stitches at the end of the operation.

Management of the Ureters. The most important technical part of the hysterectomy is the dissection and handling of the ureters, freeing them from the parametrial tissues and lifting them up and out of the pelvis, at the same time preserving their blood supply and avoiding subsequent ureteral fistula. It is not necessary to insert ureteral bougies as aids, but on the other hand, it is a distinctly dangerous procedure and leads to necrosis and fistula formation. To quote from my previous paper, "It is seldom difficult to locate the ureters if one begins to look for them high up near the bifurcation of the iliac arteries. In obese patients, and cases which are complicated by old pelvic infection with adhesions, the finding and isolating of the ureters may be most difficult."

I have perfected an original method by using tapes to retract and lift the ureters out of the way, protecting the ureteral blood vessels by rolling over a fold of the peritoneum. After the ovarian artery has been tied and the broad ligament opened up, the peritoneum being divided above the bifurcation of the iliac arteries, the ureter is exposed lying on the inner and posterior flap of the broad ligament. The internal iliac artery is then exposed and ligated with chromic catgut, after which the posterior peritoneal layer of the broad ligament is incised below the ureter midway between the bifurcation of the iliac arteries and the uterus, parallel with

the ureter and about half or three-quarters of an inch away from it, and through this slit, tapes one-half an inch wide, wet with sterile salt solution, are passed, surrounding the ureter. Traction on these tapes serves to roll a cuff of peritoneum about the ureter; this cuff can be more definitely demarked by vertical incisions. I found that with this method I could make fairly strong traction on the ureters without damaging their blood supply.

There were in my previous paper diagrammatic drawings showing the method of applying the tapes. As I have said before, I have found the method to be of great value in dissecting the vesical end of the ureter, and also, more especially, when dividing the parametrium and cutting across the vagina. In my more recent operations I have not hesitated to use additional tapes under the ureter itself close to the bladder in the final stage of the operation, using gentle traction. I have never had a ureteral fistula, although in many cases I have made fairly strong traction on the ureters.

Prevention of Infection and Implantation Metastasis. Next to the dissection of the ureters I consider the most important part of the technique the method to prevent septic or cancerous infection. The source of infection, obviously, being the ulcerated, infiltrated growth of the cervix, and the presence of discharges and organisms from the growth in the vagina in spite of all attempts at sterilization. One of my fatalities was due to a rapid septic peritonitis. Three of my recurrences have been rapid metastases in the pelvis, presumably implantation metastases. There are only two methods to consider from the point of view of avoiding infection. One devised by Werder,¹⁰ of Pittsburg, in this country, is technically too difficult and dangerous to be considered as a routine procedure. In this method the vagina is freed very far down from the bladder and rectum, and then the uterus is pulled and pushed out through the vulva and the vagina amputated from below with the patient in the lithotomy position. This method has been called an invagination from above. Wertheim tried and abandoned it because of its great difficulty and the serious bleeding from the para-vaginal tissues and the extra time required. I, also, have attempted this method, but have given it up for the same reasons. The second method, the use of the right-angled clamps devised by Wertheim, in my opinion, is the method of choice. To amputate the vagina I use the cautey with a strong right-angled blade.

The thorough use of the Percy cautey in the preliminary preparation in the method previously described is much more important, however, than the use of the right-angled clamp.

Ligation of the Internal Iliac Arteries. In the last year I have continued to ligate the internal iliac arteries in the earlier stages of radical hysterectomy in every case and I am sure that this does not interfere with pelvic nutrition and

does not increase the chances of sepsis and necrotic sloughing, nor cause post-operative cystitis. All the cases in which I have ligated the iliac arteries have been remarkably free from complications of sepsis or cystitis in their convalescence, fully as much, if not more so, than in the cases in which the arteries were not tied. It is my opinion that the iliac ligation simplifies the operation, enables a much clearer dissection and easier freeing of the bladder and diminishes arterial bleeding deep down along the vagina and rectum.

Drainage and After-treatment. I have come to rely almost entirely upon vaginal drainage with iodoform gauze. It is possible that in a very few cases, where there has been unusual infection of the peritoneum from complicating pus tubes, or where the bowel has been injured or the bladder resected, abdominal drainage may be advisable. During the last year I have used no abdominal drainage in any case.

The after-treatment is that of any abdominal operation, except that it is well to elevate the head of the bed about eighteen inches for the first week and to use an in-lying catheter for the same length of time together with urotropin. The majority of my cases have had a surprisingly satisfactory recovery and have been singularly free from any complications.

Preliminary Report of a New Method of Operating for Cancer of the Cervix, the Posterior Vaginal Wall and Recto-Vaginal Septum. The following operation has been performed by me with technical success and will be reported in detail in an illustrated article later. I suggest it as an operation for the possible cure of cases of squamous cell carcinoma of the cervix which start from the portio-vaginalis of the cervix, and while involving the cervix to only a moderate extent, have extensively invaded the vaginal wall and the recto-vaginal septum, cases in which the cervix is but slightly involved and the main portion of the disease is confined to the vagina. This operation necessitates the removal of the uterus, parametrium and posterior half of the vaginal tube and a portion of the rectum. It should be done in two stages. This operation is no more radical in its extent than the two-stage operation for cancer of the rectum, and I firmly believe has a distinct value in such selected cases, cases which hitherto have been considered inoperable.

In the first stage the cervical and vaginal disease is thoroughly treated by the Percy method for thirty minutes. Immediately following this the steps of my radical abdominal hysterectomy are followed in every detail with this exception, that after dividing the parametrium with the cautery knife the cervix is cut across supravaginally and thoroughly charred intra-abdominally, using the abdominal water-cooled speculum. The cervix is destroyed with the cautery, leaving only a thin shell of tissue between the pelvis and the vagina. The ureters are looped up with catgut and fastened away from

the remains of the cervix and the field of the second operation in such a way that they will not be kinked. The median incision is then closed without drainage and a left inguinal colostomy made.

The second stage can be done in from three to four weeks afterward, depending upon the condition of the patient and the amount of vaginal sloughing and discharge. It can be done under spinal anesthesia if desired. With the patient in the lithotomy position the Schauta lateral incision through the para-vaginal and para-rectal tissues to the hollow of the sacrum is made and the remains of the cervix and posterior half of the vaginal tube and as much of the rectum as necessary removed.

Causes of Death and End Results in My Personal Cases. As stated earlier in this paper, I have done 42 radical (Wertheim) hysterectomies, 31 at the Massachusetts General Hospital and 11 in my private practice. In these 42 hysterectomies I have had 6 deaths as a direct result of the operation, an immediate mortality of 14%. The causes of death were as follows:—

One case died on the second day of general peritonitis, an extremely difficult case of a very obese woman; one in twelve hours of shock; one on the tenth day, cause of death not made out at autopsy; one the fifth week of iliac thrombophlebitis; one on the tenth day of intestinal obstruction; one in the sixth week of intestinal obstruction, for which enterostomy had been done.

Six of my cases have been done over five years ago; one of these died in thirteen months from recurrence in the pelvis with obstruction of the ureter, the five others are alive and free from recurrence from six to fourteen years. Thirty cases have been done since August, 1911. Five of these developed rapid recurrence in the pelvis within from three to six months after the operation and died a few months afterward. Five cases are alive and well over three years without recurrence. Fourteen are alive and free from recurrence from one to two years. Six have been done in the last six months and are free from recurrence as yet.

ANALYSIS OF ALL CASES OF CANCER OF THE UTERUS, BOTH OF THE CERVIX AND BODY, AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

| | |
|---------------------------------|-------|
| Total number of cases..... | 420 |
| Personal cases of Dr. Cobb..... | 98 |
| Refused operation..... | 4 |
| Inoperable..... | 63 |
| Palliative operations..... | 201 |
| Vaginal hysterectomies..... | 19 |
| For cancer of cervix..... | 14 |
| For cancer of fundus..... | 5 |
| Abdominal hysterectomies..... | 133 |
| For cancer of cervix..... | 104 |
| For cancer of fundus..... | 29 |
| Operability..... | 36.1% |
| 264 came too late. | |

ANALYSIS OF THE RADICAL (WERTHEIM) HYSTERECTOMIES AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

| | |
|--|-------------|
| Total number of cases..... | 55 |
| Immediate mortality..... | 12 or 21.8% |
| Surviving cases..... | 43 |
| Traced..... | 43 |
| Operated on over 5 years ago..... | 14 |
| Alive and free from recurrence over 5 years..... | 7 or 50 % |
| Alive and free from recurrence over 3 years..... | 12 |

ANALYSIS OF PERSONAL CASES OF DR. COBB AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

| | |
|--|------------|
| Total number of cases..... | 31 |
| Immediate mortality..... | 5 or 16.1% |
| Cases traced..... | All |
| Operated on over 5 years ago..... | 6 |
| Alive and free from recurrence over 5 years..... | 5 or 83 % |
| Alive and free from recurrence over 3 years..... | 10 |

SUMMARY OF MY RADICAL HYSTERECTOMIES AT THE MASSACHUSETTS GENERAL HOSPITAL DONE OVER A YEAR PREVIOUS TO JUNE 1, 1915.

Elizabeth C., W.S., vol. 369, p. 190, Jan. 4, 1901, age 35 years. Symptoms: pain and flowing for six months. Had been curetted by a doctor. Cervical growth size of half a dollar, marked thickening and induration in left broad ligament. Iliac glands on both sides removed.

Pathological Report. Squamous cell carcinoma of the cervix; glands not malignant.
Alive and free from recurrence, June 1, 1915, fourteen years and five months.

Deborah M., Hospital No. 128406, August 6, 1902, age 37 years. Symptoms: continuous flowing without pain for two months. Moderately extensive cancer of the cervix. Uterus movable, broad ligaments not thickened. One enlarged iliac gland on the left removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Death in thirteen months; recurrence in the pelvis.

Madeline V., Hospital No. 134507, S.S., vol. 83, p. 287, Oct. 16, 1903, age 48 years. Symptoms: for five months excessive flowing and pain. Extensive cauliflower growth of cervix, uterus movable. No thickening in the broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, eleven years and eight months.

Jane S., Hospital No. 140882, S.S., vol. 107, p. 143, Jan. 14, 1905, age 60 years. Symptoms: for two or three years bloody discharge, some pain, loss of weight and strength. Cervix hard and indurated, several deep ulcerations, uterus movable, broad ligaments not thickened. One enlarged gland in the left iliac region removed.

Pathological Report. Squamous cell cancer of the cervix; gland non-malignant.

Alive and free from recurrence June 1, 1915, ten years and four months.

Ethel H., Hospital No. 150169, S.S., vol. 137, p. 23, Nov. 6, 1906, Age, 27 years. Symptoms: for five months flowing and pain. Had been curetted by a doctor. Badly eroded cervix with free hemorrhage. On examination broad ligaments not indurated. Bladder torn in operation. Iliac glands on left enlarged and removed.

Pathological Report. Squamous cell cancer of the cervix; glands non-malignant.

Alive and free from recurrence June 1, 1915, eight years and seven months.

Rose S., Hospital No. 159940, Aug. 24, 1908, age 25 years. Symptoms: for fourteen months constant flowing and foul discharge. Cervix hard, nodular and excavated. Uterus not freely movable. Induration in both broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, six years and seven months.

Isabelle B., Hospital No. 177394, July 25, 1911, age 35 years. Border-line case that had had previous amputation of the cervix. Broad ligaments extensively involved in the disease. Left iliac glands markedly enlarged and cancerous. Bladder opened.

Pathological Report. Squamous cell cancer of the cervix. Lymph glands metastatic. Carcinoma.

Case recovered from operation but had rapid recurrence within two months but lived two years after operation. Died July 31, 1913.

Matilda R., Hospital No. 178765, Oct. 10, 1911, age 50 years. Symptoms: for four months irregular hemorrhage, vaginal discharge and pain in back. Attempted vaginal hysterectomy because of adhesions unsuccessful. Subsequent abdominal hysterectomy.

Pathological Report. Squamous cell cancer of the cervix. Death in forty-eight hours of septic peritonitis.

Anna M. M., Hospital No. 185730, Jan. 1, 1912, age 39 years. Symptoms: for four weeks pain in left iliac region with uterine hemorrhage. Induration in the right broad ligament. Preliminary curetting and cauterization and nine days afterward abdominal hysterectomy. No glands removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Case alive and free from recurrence June 1, 1915, three years and five months.

Clara A. J., Hospital No. 180385, Jan. 9, 1912, age 39 years. Symptoms: for two months. No preliminary cauterization. Radical abdominal hysterectomy. Bladder opened and sutured. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Died in fifth week of septic iliac thrombosis.

Fannie S., Hospital No. 180985, Feb. 10, 1912, age 33 years. Symptoms: for one month previous, flowing and foul discharge. Occasionally pain in right side. Diagnostic curettage and removal of specimens.

Pathological Report. Simple glandular hyperplasia.

Nov. 13, 1912, re-entered the hospital. Radical

hysterectomy. One iliac gland on right size of bean removed.

Pathological Report. Early squamous cell cancer of cervix. Gland not metastatic.

Alive and free from recurrence June 1, 1915, two years and six months.

Laura E. T., Hospital No. 189059, April 10, 1912, age 48 years. Symptoms: excessive flowing for two months. Extensive cauliflower growth of cervix. Broad ligaments not indurated. Radical abdominal hysterectomy. Enlarged and hard glands from the bifurcation of both iliacs removed.

Pathological Report. Squamous cell cancer of the cervix. Lymph nodes not metastatic.

Recurrence in pelvis within six months. Died Sept. 10, 1914.

Mary J. M., Hospital No. 184450, Aug. 17, 1912, age 42 years. Symptoms: for two years hemorrhage, foul, watery discharge, no pain. Inverted type of cancer of the cervix. Uterus freely movable. Radical abdominal hysterectomy.

Pathological Report. Squamous cell cancer of the cervix.

Death from shock in twelve hours.

Annie O., Hospital No. 185280, Oct. 2, 1912, age 38 years. Symptoms: for three months profuse flowing, pain in back, uterus fairly movable, cervix ulcerated and eroded. One-stage operation, curette and cautery followed by abdominal hysterectomy. Large glands from both iliac regions removed.

Pathological Report. Squamous cell cancer of the cervix. Metastasis in iliac glands.

Recurrence in pelvis within two months. Vaginal growth curetted and cauterized Dec. 16, 1912. Death, March, 1913.

Philomena B., Hospital No. 186643, Dec. 19, 1912, age 43 years. Symptoms: for five months irregular flowing, no pain. Uterus movable. No induration in broad ligaments. Cauterization preliminary to hysterectomy. No glands removed.

Pathological Report. Adeno-carcinoma of cervix. Death in ten days. Cause of death not determined at autopsy.

Alice M. M., Hospital No. 178486, Feb. 6, 1913, age 50 years. Symptoms: for two years vaginal discharge and bleeding. Large cauliflower growth on cervix. Uterus moderately movable. Two-stage operation, amputation of cervix and cauterization three weeks previous to radical hysterectomy. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, two years and four months.

Bernesse S., Hospital No. 189215, May 19, 1913, age 33 years. Symptoms: for two months irregular flowing. Uterus movable, cervix—cauliflower growth. Preliminary cauterization, radical hysterectomy three weeks afterward. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Recurrence in the stump of the vagina in six months. In eight months recto-vaginal fistula.

Death, July, 1914.

Mina C. McW., Hospital No. 189708, June 18, 1913, age 40 years. Symptoms: for over a year abdominal pain and excessive flowing. Loss of forty pounds in weight. Cervix extensively involved, uterus fairly movable. Preliminary cauterization. Radical operation within three weeks. No glands removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Alive and free from recurrence June 1, 1915, two years.

Zenia S. C., Hospital No. 190040, July 8, 1913, age 65 years. Symptoms: for three months backache and irregular bleeding. Inverting type of cancer. Radical operation. No glands removed.

Pathological Report. Carcinoma of cervix.

Death from probable recurrence in the liver within six months.

Rose A., Hospital No. 190533, Aug. 5, 1913, age 48 years. Symptoms: for six months irregular hemorrhage and discharge. Cervix extensively eroded. Induration in both broad ligaments, uterus not freely movable. Question of involvement of bladder. One-stage operation without cauterization. No glands removed.

No laboratory report, but case absolutely typical one of cancer of cervix.

Alive and free from recurrence June 1, 1915, one year and ten months.

Maud L., Hospital No. 190909, August 27, 1913, age 31 years. Cancer of cervix complicated by pregnancy. Radical abdominal operation; no glands removed.

Pathological Report. Carcinoma of cervix.

Alive and free from recurrence June 1, 1915, one year and seven months.

Wilhelmina G., Hospital No. 191529, Oct. 1, 1913, age 44 years. Symptoms: for five months foul smelling, watery discharge with occasional hemorrhage. Cervix hard and indurated. Uterus somewhat fixed. One stage operation without cauterization. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Alive and free from recurrence June 1, 1915, one year and eight months.

Florence A. D., Hospital No. 192734, Dec. 9, 1913, age 55 years. Symptoms: for four weeks hemorrhage. Hard nodular mass in the cervix extending on posterior vaginal wall, induration in left broad ligament. Radical operation preceded by cauterization. No glands removed.

Pathological Report. Squamous cell cancer.

Lived for two months and died of intestinal obstruction, which necessitated enterostomy.

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INOPERABLE UTERINE CARCINOMA. A METHOD OF APPLYING HEAT IN ITS TREATMENT.*

By J. F. PRECY, M.D., GALESBURG, ILL.

THE basis of my technic has back of it the experiments of a rather large number of laboratory workers who have shown that the carcinoma cell cannot be successfully transplanted after an exposure of ten minutes to a temperature of 113° F. (45° C.). Normal tissue cells, these experiments also show, will bear a temperature of 132° F. to 140° F. (55° C. to 60° C.) without being devitalized. Physicians and surgeons for all time have been aware of the fact that the local application of fire is the only agent that has had any real inhibitory effect on the progress of a gross mass of cancer. Only the manner of using it has been at fault.

Experimental work has shown that a low degree of heat has a much greater penetrating power in a mass of cancer than has a high degree.¹ High degrees of heat carbonize the tissues, inhibiting penetration; low degrees of heat coagulate the tissues, encouraging heat dissemination. High degrees of heat, with the resulting carbon core, prevent drainage in the cancer mass. This permits, in a certain number of cases, the absorption of an excessive quantity of broken down cancer cells, which are dangerous to the life of the patient. When the temperature in the heating iron is the right degree for the greatest penetration, its shank can be wrapped with surgeon's cotton and remain there for forty minutes, or more. The color or texture of the cotton will not be altered in any way by this degree of temperature; and this merely emphasizes the fact that a burning temperature is not used.

Another important consideration in the use of what I have called elsewhere my "cold iron" is the much lessened danger to the rectum, the bladder and the ureters. It is most unfortunate to the correct use and understanding of this technic that it is thought and spoken of as a "cautery" operation. A cauterizing temperature (cherry red or higher) only defeats, I repeat, the effort to get a maximum penetration of the heat.

To the novice, in the application of this technic, one of the surprises in its application is the slowness with which the heat penetrates the cancerous mass. When the mass in the pelvis is grasped from the abdominal side, and the heating iron passed up to the fundus of the uterus through the water-cooled speculum in the vagina, twenty to forty minutes are frequently required before an appreciable degree of heat-change is noted in the tissues invaded by the cancer. This frequently leads the operator, unfamiliar with the most effective way of applying

the technic, to turn on more heat. If this is persisted in, a carbon core is formed, which still further prevents the dissemination of heat in the cancerous mass, and, as a result, more heat is turned into the heating iron until a dangerous degree of temperature is developed.

Not the least of the beneficial effects of the heat, in comparison with the use of the knife in any degree of development of uterine carcinoma, is the fact that the heat at once seals the lymphatics and blood vessels and cuts off the nerve supply. This not only limits the real dangers from the further dissemination of cancer, but prevents infection. I am also convinced that it has much to do with the marked freedom from suffering and shock, which is the rule in these cases following the application of heat.

I am not satisfied that this technic should be followed by either panhysterectomy, or a Wertheim. When a recurrence develops, following either of these operations, my chief objection is that there is not enough tissue left in which heat can be disseminated. The most hopeless class of cases that I see are those in which a Wertheim has been attempted, or a panhysterectomy performed, and recurrence has developed in the stumps of the broad ligaments, in the pelvic fascia, along the ureters, in the base of the bladder, or in the vaginal walls. One thing, however, is quite certain, and that is, if either of these operations is decided upon as the best surgical procedure in a given case, the application of heat first, applied according to my technic, must of necessity add immeasurably to the results in the way of preventing the dissemination of cancer cells by the knife.² This technic correctly applied certainly enlarges the field of the Wertheim operation. It is the only technic that effectively destroys the gross mass of cancer in a way that is not dangerous to the life of the patient. It leaves only the small points of metastases to be cared for by the resistance which the body has already developed from the presence of the gross mass. If this is not sufficient, then possibly a Wertheim, performed by one qualified to do it, may be indicated; or, better still, the x-ray, preferably, I believe, from the Coolidge tube, may be given by the deep penetration method.

Many methods for destroying cancer have been worked out. Some of them will assume greater promise of effectiveness in caring for disseminated small foci, after the destruction of the gross mass by the technic here outlined. If no such foci are in evidence, then, of course, the tendency to recurrence of the growth in distant tissue is lessened.

In the application of my technic, opening the abdomen is a very essential factor in its successful development. Only when the gloved hand grasps the malignant mass in the pelvis, can be determined with safety and certainty the necessary degree of heat to be applied, and where to apply it.

In about 50% of my cases the abdomen is

* A Clinical lecture by the author, which preceded his demonstration of his technic of applying heat in uterine carcinoma. Delivered at the Massachusetts General Hospital, April 21, 1915, upon invitation of the Boston Surgical Society.

opened more than once for the reapplication of the heat. In each of two of my cases the abdomen has been opened five times. In one of these the fifth operation was done "on suspicion" that a recurrence was developing in the pelvis. It could not be determined by examination through either the vagina or rectum. A malignant mass was found springing from the pelvic fascia high up on the left side over the ureter and iliac vessels. The heat treatment was applied as thoroughly as the location of the disease permitted, and the abdomen closed. This patient is doing amazingly well, seven months after the date of the fifth opening of her abdomen. She is still under treatment with the deep penetration method of the x-ray from the Coolidge tube. The other case mentioned above is also doing well, and is being treated in the same way by the Coolidge tube.

I mention these two cases, first, to call attention to the fact that the heat can be applied to a malignant mass in close proximity to blood vessels, because there is little danger of damaging important vessels as long as the heating iron is not brought directly into contact with them. The explanation is that the circulating blood maintains the temperature of the vessel wall in much the same way that my water-cooled speculum protects the vaginal walls. The second important consideration, where the abdomen is likely to be opened more than once, is that of abdominal adhesions. If, at the second or subsequent abdominal sections, extensive adhesions are encountered, the operative results outside of the cancer technic are in a fair way to be bad.

I have succeeded in practically eliminating abdominal adhesions by the following technic: first, a ten-yard sponge of baby flannel, six inches wide, wrung out in a 2% solution of sodium citrate in normal saline, is used.³ The abdominal walls are elevated as much as possible during deep anesthesia, and the intestines and omentum are pushed up out of the pelvis and under the upper abdominal walls *without brushing or traumatizing either the visceral or parietal peritoneum*. The edges of the abdominal incision are protected by towels from contact with the sodium citrate sponge for the theoretical reason that it may interfere with good union. All blood is kept out of the abdominal cavity for fear that its organization may result in adhesions. The baby flannel sponge is less likely to traumatize the endothelium than the usual gauze pack. In addition, it more completely excludes the air from the abdominal cavity.

After a rather large experience with cases in which the abdomen has been reopened more than once, I am convinced that these five factors—the sodium citrate, the flannel sponge, lessened traumatism, exclusion of air and exclusion of blood—are of supreme importance in preventing intestinal adhesions.

I also attribute to this technic for preventing abdominal adhesions, an important place in the explanation of the freedom from shock, gas

pains and general suffering, which usually marks the convalescence of my cases of operated uterine carcinoma. This holds even in those cases in which the abdomen has been open two or more hours, as is sometimes true where there is extensive involvement of the pelvic structures.

TECHNIC.

The patient is placed on the table in such a manner that the buttocks *will remain* over the lower edge of the table. This position can be maintained only when the trunk is supported by shoulder braces. The head is dropped so that the vaginal field is brought within easy access of the operator who is to apply the heat through the water-cooled vaginal speculum. The legs are elevated and separated as in any vaginal operation. In elevating the legs, they should not be thrown so far back on the abdomen as to interfere with the freedom of the operator working above. The abdomen is first opened, and the extent of the pelvic and abdominal metastases (if any) determined. Then the intestines are packed off, as already detailed, and the internal iliac and ovarian arteries tied. I have lost four patients from late hemorrhage coming on about two weeks after the application of the heat, where the iliacs were not tied. Since tying the vessels, I have lost no patients from hemorrhage or any other cause, following the operation. In two recent cases the remains of the uterus came away as a great slough, leaving a healthy granulating surface.

While the vessels are being tied, the assistant can dilate the vagina with the vaginal dilator. This dilatation should be persisted in until the vulvar orifice can easily accommodate the water-cooled vaginal speculum. In my own clinic, I have found it useful to have at least three of these specula. The woman who has never borne children, and the woman with a very deep relaxed vagina, of necessity require two different patterns of instruments; even though the vaginal dilator solves the problem in many cases, making the vagina fit the speculum rather than having many specula to fit the vagina.

The instruments devised to most effectively apply this treatment consist, first, of a set of four electric heating irons, which are made either for the 110 or 220 volt current. These heating irons come very near to fulfilling the requirements for perfect instruments in furnishing heat for the purposes of this special technic. They also make ideal general purpose cauteries for heavy or light work. They are practically never out of order, and require no special care. In addition to the heating outfit, the average case for treatment requires a vaginal dilator, a water-cooled speculum, a vulsellum forceps and a wire retractor. The two latter instruments are useful in bringing the outer circumference of a large mass of cancer within the reach of the heating iron. When there is extension of the cervical mass into the vaginal

walls, the water-cooled speculum open at the top gives one a most effective means of applying the heat in its destruction.

My own method of dealing with this condition is to put the heating iron on the bottom of the water-cooled speculum, and place a thermometer in the urethra. When a degree of heat sufficient to maintain the temperature in the urethra at 120° F. (49° C.) is obtained, the thermometer is removed and the speculum slowly rotated until the entire vaginal surface has been treated by the heat. This degree of heat, when sufficiently applied, will alter the color of the vaginal mucous membrane to a sickly yellow, from which it will recover without the formation of scar tissue.

In applying this treatment, I wish to emphasize four very important essentials, in order to insure the greatest probability of success. First, open the abdomen; second, introduce the heating iron through the vaginal or cervical mass to the fundus of the uterus, and *hold it there* until everything abnormal is too hot to hold in the hand encased in a medium weight rubber glove; third, apply the heat until all the fixed carcinomatous tissues are freely movable; fourth, use a low degree of heat. I want to reemphasize points two and three. It can be readily seen that if the heating iron is aimlessly moved about, no area of tissue will become sufficiently heated to destroy the carcinoma present. It is absolutely essential, therefore, that the heating head be held in one place until that particular area is sufficiently hot. It can then be moved to another area.

One of the surprising things is the difficulty encountered in getting the heat through the cancerous mass in sufficient degree to be effective. It cannot be done quickly either with a high or low degree of temperature, unless the malignant mass is very small. The heat must be applied until all the fixed pelvic structures are as freely movable as they were normally. This means the inflammatory, as well as the tissues invaded by the malignant process. If any of the pelvic structures remain as they were found before the heat was applied, it can readily be seen that the cancer cells which they may contain have not been altered by the treatment. It requires judgment and experience to do what is here insisted upon as necessary; but the failure to do this will prove to be the stumbling block to the successful and effective performance of this method of treatment.

The technic above outlined removes the gross malignant mass at one sitting. It leaves the small points of metastasis that may remain to be treated by one or more of the many recognized methods of treatment: operative, x-ray, radium or serum. But more than all else, it permits, I believe, the acquired but insufficient resistance, which must and does develop during the progress of the cancerous invasion, to assert itself. From my experience, I am convinced that this acquired resistance, although obviously insuffi-

cient while the gross mass is still present, is in many cases capable of clearing up small points of metastasis after the destruction of this mass.

Finally, we should not forget that many of these patients are *dying not from cancer*, but from the secondary invasion of destructive septic organisms into the malignant mass. We see the same destructive effects from these bacteria in the last stages of tuberculosis and syphilis. Inoperable cancer, plus the secondary invasion of sepsis-producing organisms, make a picture only too well known for its misery and hopelessness. Heat generously applied, together with the final beneficent results of the natural resistance already developed in the blood, in many cases changes this mass of living despair into one where hope and comfort abound.

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A CASE OF PYELONEPHRITIS, COMPLICATED BY ADENO-CARCINOMA AND CHYLURIA.*

BY ELIZABETH T. GRAY, M.D., BOSTON,

Visiting Surgeon to New England Hospital.

THIS case which I wish to report is unusual for two reasons—first the adeno-carcinomatous involvement, and second the condition of chyluria which was found.

Mrs. E., widow, 74 years old, born in Maine, was admitted to the hospital April 1. Her family history shows that her mother died of diphtheria, and her father of "cancer of the lip." She has had one child and no miscarriages. Menopause at about 40.

She has had more or less trouble with hemorrhoids during her adult life, these becoming ulcerated at several different times. About 14 years ago the trouble with the kidneys began. She was told by a physician at that time that she had a floating left kidney.

Ten years ago had an abscess somewhere in the urinary region with a discharge of blood and pus from the bladder; but apparently entirely recovered from this condition after a few weeks.

Since then has had several attacks of pain in right hypochondriac and lumbar regions, each lasting from 2 to 5 weeks and occurring every 9 or 10 months. These attacks have been more frequent during the last two years.

Three weeks ago had an attack, during which the pain was almost unbearable, the right side being extremely tender to touch; but she never has had nausea or vomiting with her attacks.

* Read before the New England Hospital Medical Society, May, 1914.

Upon examination we found Mrs. E. cachectic in appearance, thin, almost emaciated, and in a most critical condition.

Temperature 103, pulse 100.

The right abdomen showed a circumscribed, fluctuating mass extending from the line of the ribs to the iliac crest and in as far as the border of the right rectus. The lumbar region showed nothing abnormal. This mass was so tender that examination by palpation was very unsatisfactory.

Examination of catheterized specimens of urine showed (she passed about 500 c.c. in each 24 hours):

| | April 2 | April 3 | April 4 |
|----------|---------------|------------|---------------|
| Sp. gr. | 1011 | 1023 | 1035 |
| Color | Pale straw | Deep amber | Reddish brown |
| Reaction | Alb | Acid | Acid |
| | Albumen trace | Trace | Trace |
| | No sugar | No sugar | No sugar |

Sediment: Much fat, so that a stain was left on sides of the glass; a few hyaline casts, and many pus cells. Blood count showed leucocytosis of 24,000.

X-ray Report: "The examination of the right abdomen from crest of ilium to lower ribs shows no outline of kidney. There is present a dense shadow that is very much mottled, but leaves no definite outline." A diagnosis was not made, but further information was asked, especially about the chyluria.

As the patient was in such a critical condition, I did not think it advisable to have the ureters catheterized. From the clinical findings I made a diagnosis of either a pyonephrosis or a pyelonephritis.

On April 5 the patient was prepared in the usual way for abdominal operation.

As the mass was so large, I decided to use the Israel incision, i.e. the incision beginning at the middle of the last rib, curving forward and downward and then outward, parallel to the crest of the ilium.

Immediately a large quantity of very foul-smelling pus escaped through the incision. I could not find a kidney upon digital examination, but brought out large quantities of bloody debris, and among this debris several stones, the largest of which measured $1\frac{1}{2}$ cm. by 1 cm.

The cavity was emptied by the hand, and then thoroughly irrigated with normal saline, the extremities of the incision united with through-and-through silkworm gut sutures and a double cigarette drain introduced.

The patient made an uneventful recovery, the temperature on day after operation being 102.5 at 4 a.m. and at 4 p.m. 99.4. The following day the temperature was normal and remained so during convalescence.

The drainage tubes were removed permanently on the tenth day. The patient was discharged May 11 in good general condition and with the incision practically closed.

The amount of urine passed for the first four or five days after operation was very small, average about 200 c.c. in the twenty-four hours, but with diuretics and plenty of water the amount increased until she passed about 1200 c.c. The urine showed neither pus, blood nor fat after the operation.

Pathological Report from Tufts College Laboratory. (Unfortunately this is not complete as the calculi were lost and so could not be examined).

The report reads: Specimen shows debris of right kidney in firmly walled-off pockets, and consists of masses of soft reddish grey friable tissue with abundant clot. Diagnosis, adeno-carcinoma. Swabs from pus show streptococci and staphylococci.

This case was probably a pyelonephritis rather than a pyonephrosis of the right kidney. A pyelonephritis presupposing a suppurating inflammatory process beginning in the renal parenchyma, which may or may not involve the pelvis; the process being either continuous or consecutive; while a pyonephrosis means simply a dilatation of the pelvis and calices with pus. These processes are always of bacterial origin and may be a hematogenous and descending, or urogenous and ascending.

The hematogenous form may follow any of the acute infectious diseases or simple local affections like furunculosis or tonsillitis. Usually this form begins in the cortex, from which the process extends. When the surface of the pelvis has been eroded by a stone the infection continues downward and produces pyelitis.

The colon bacillus is the organism most frequently found, but mixed infection, showing a variety of micro-organisms, is common.

Stone in the kidney or ureter is caused from the inability of the urine to retain in solution certain of its constituents, i.e. the urates of Na. and NH_4 , uric acid,

oxylate } lime cystin and xanthin
carbonate }

Secondary calculi usually consist of phosphate of lime and develop only in a kidney already the seat of infection.

Often a stone may be carried either in the cortex or pelvis for many years, leading to absolute destruction of the kidney without giving a sign of its presence, renal colic being a very inconstant symptom in a large number of cases.

When infection takes place, a persistent pyuria is present.

Diagnosis of stone can be made fairly easily by the x-ray, but to obtain a satisfactory plate is still one of the difficult feats of radiography. If the x-ray plate is good, it should show the last two ribs, the transverse processes of the lumbar vertebrae and the shadow of the psoas muscle plainly. Then the shadow of even a normal kidney should be seen distinctly and is useful in determining the presence of the second kidney. In enlargement from tumors or distention a positive shadow should always be obtained.

The presence of a stone is revealed by a distinct sharp shadow upon the kidney shadow, but this should be interpreted as a stone only where it is associated with other clinical evidence, because calcified lymph nodes, the thickened tip of an appendix and buried sutures infiltrated with lime salts, after a previous laparotomy, have been mistaken for kidney or ureteral stones.

Tumors of the kidney are rare, only 2% of all

tumors being found in this location, the most common malignant form being the sarcoma. True adeno-carcinoma of the kidney is practically unknown, but quite frequently in conjunction with carcinoma, adenomatous masses are found, and to this condition the term adeno-carcinoma is given.

Again, malignant disease of the kidney is oftenest found in childhood; from 30 to 52% being quoted as the proportion found during the first ten years of life.

Adult life is practically exempt, and the liability increases again in old age.

Tumors of the kidney occur oftenest in men, but are more often inoperable in women, as the earlier symptoms of renal new growth do not attract so much attention in women as in men.

Dermoid cyst, fibroma, carcinoma and adeno-carcinoma are the rarest forms of tumors in the order given above. Adeno-carcinoma usually begins in the cortex, and may destroy the entire kidney without producing any increase in size or alteration of form. Metastases occur, via the blood vessels, in the liver, lungs, retro-peritoneal glands, second kidney, intestines and pancreas.

The prognosis is uniformly bad, most cases being ultimately fatal.

Symptoms: Hematuria, pain and usually tumor. Hematuria is the most common initial symptom, occurring in 70% of the cases. Acute pain in one or both kidney regions is sometimes the earliest symptom. Cachexia usually does not appear until an advanced stage of the disease. Fever does not often occur. The urine may have the color of pure blood or may vary from this to pale straw color; it is clear in about 70% of the cases.

Israel describes worm-like bodies in the urine, which he believes are pathognomonic of malignant tumor. They usually occur in a faintly bloody or clear urine, and consist of a fibrinous ground substance, in which blood cells, leucocytes, fat droplets and swollen epithelium are embedded.

Tumors of the kidney are comparatively slow in growth, often taking from 10-15 years.

Chyluria is a peculiar condition of the urine, in which it presents a more or less milky appearance and contains fat, with more or less albumen. The urine is usually acid, and the sp. gr. varies from day to day. It closely resembles the urine of pyuria, but can be distinguished from it by the microscope, which shows much fat in a fine state of emulsion, leucocytes and red blood corpuscles.

Chyluria is often associated with elephantiasis and lymphangietasis. Chylous urine may be of parasitic or non-parasitic origin.

The parasitic or obstructive is due to the obstruction of the kidney lymphatics by the filaria sanguinis hominis and then their rupture, and the discharge of chyle into the kidney.

The cause of the non-parasitic form is obscure; possibly it is a symptom of malignant tumor of the kidney.

LIMITATIONS OF THE RADICAL OPERATION FOR CERVICAL CANCER OF THE UTERUS.

By HENRY T. HUTCHINS, M.D., BOSTON.

THE doctrine of the early diagnosis of cancer of the cervix has now become sufficiently widespread in almost every community in the civilized world. No medical student graduates from a decent school nowadays who has not had the importance of examination for early cancer thoroughly impressed upon him. Physicians in small communities have heard of it and thoroughly understand it. That many physicians are negligent and lazy in this regard is true and most unfortunate, and for this reason the doctrine should be continually brought before the medical profession.

A sufficient number of surgeons in every city of considerable size have perfected themselves in the performance of a radical operation for this disease so that no woman need lack for proper surgical treatment.

The question of the operability of a certain case, when once it is seen by a competent surgeon is, however, still open for discussion. On this point there is a difference of opinion. One surgeon will operate on every case of cancer of the cervix regardless of its extension, evidently going on the principle that one cannot make a bad condition much worse. Another surgeon will operate only when a radical removal is clearly possible. How then should operability be clearly defined and what should be done for inoperable and border-line cases?

No cases are more distressing than those of cancer of the cervix upon which a radical operation has been performed and the cancer not completely removed and possibly a vesical, rectal or ureteral fistula left. Invariably when this takes place, the patient herself and her relatives are unanimous in declaring that they would much rather that nothing had been done or that death under the anesthetic had relieved the sufferer.

We all realize that it is not possible by digital examination to determine the operability of every case,—that the exploratory incision is frequently necessary; but having made this incision, a conscientious surgeon should then know whether a clean operation can be performed or not. It is at this point that true surgical judgment should be employed and it is here that more surgeons should be willing to stop and back out. It is much easier, once the abdomen is opened, to plunge ahead, almost invariably get into serious trouble, and leave the patient with distressing sequelae, than to close the abdomen and start immediately palliative treatment. We must look at these inoperable or borderline cases, as we should at every case, entirely from the patient's standpoint. If we cannot be sure of having the patient better off with at least a fair chance of a cure, then the complete operation should not be done. A woman

relieved of bleeding and pain, but completely disabled by a urinary fistula and in whom the cancer has not been entirely removed is indeed a pitiable sight.

What I wish to urge then is conservative radicalism in these borderline cases. If doubt exists as to whether a case is operable or not, always open the abdomen and find out, thus giving every case the full benefit of the doubt. The operability can be determined immediately the abdomen is opened. If the base of the bladder is involved, if the rectum is involved, if the carcinoma extends laterally to the wall of the pelvis and surrounds the ureter, and if the iliac glands are involved, only a minimum of these cases will be cured by radical operation and a large number will be left in a hopeless condition. In such cases it is my opinion that we shall better serve our patients by not attempting the radical operation. A resection of the bladder, a transplantation of the ureters, or a resection of the rectum *without* the complete removal of every vestige of cancer, are unjustifiable procedures.

What then shall we do to relieve these cases, leave our patient in better condition and prolong life with the maximum degree of comfort? We have at hand many procedures by which this can be accomplished without injury and incapacitating sequelae. Providing after the abdomen is opened the case is found too far advanced for a clean radical operation, both internal iliacs should be tied and the abdomen closed. This will help to relieve the bleeding and in some measure delay the spread of the growth. The cervix should then be attacked with the slow cautery, taking great care not to char the tissue by too high a degree of heat and apply a low degree of heat for one half to one hour. The heat may be applied at intervals of from two to three weeks. By this means we completely relieve the bleeding and foul discharge by a surgical procedure which involves the minimum of shock to the patient, accomplishes everything that can be done and avoids the unnecessary and distressing fistulae which, even in the hands of the most competent, are altogether too frequent.

It is far from my purpose to decry the employment of the radical operation whenever that operation can be clearly defended, but I feel that in many cases the operation is being performed when the chance of a cure is not even probable, and that by doing so we cannot persuade ourselves that we are giving our patients the greatest chance and are far from giving them the *only* chance. The prolongation of life in comfort is in the great majority of cases to be obtained by the less radical procedure. The advent of Dr. Percy's principle of the long continued application of a low degree of heat will be a great boon to this class of patients.

The campaign for the early examination and diagnosis of cancer must be continued with vigor and the radical operation performed on

all such cases, but in the cases where the early diagnosis has not been made, and those form a large group at present, let us adopt measures which give the maximum of relief and comfort for the remainder of life and the minimum of mutilation, rather than carry the radical procedures to such unfortunate, unfruitful and unsurgical extremes. If we cannot do good let us not do harm and thus bring discredit on radical surgery and attempt to ease our consciences by the plain falsehood that "we have given the patient her only chance."

Book Reviews.

Alone in the Sleeping Sickness Country. By FELIX OSWALD, D.Sc., F.G.S., F.R.G.S. London: Kegan Paul, Trench, Trübner & Co., Ltd. 1915.

In this delightful volume the author depicts the habits and characteristics of the Kavirondo negroes among whom he lived alone at close quarters on the cliffs of the Victoria Nyanza in the heart of Africa close to the equator. Though only three-weeks' journey distant from London, he was there in a primitive civilization essentially identical with that of the early Caledonians of Scotland of whom Herodian writes "They know not the use of clothing but encircle their necks and loins with iron, deeming this an ornament and an evidence of opulence."

The primary object of the author's journey was not medical nor ethnological, but to pursue a geological investigation on behalf of the British Museum of some miocene deposits on the east coast of the lake. This research, however, carried him through the heart of the sleeping sickness country and in two chapters devoted to this subject he describes and discusses the disease, its relation to the conditions of the inhabitants and the means of its treatment and prevention from the valuable point of view of a non-medical scientist. His tastes and interests are refreshingly catholic and he writes with equal fascination and concern of the climate, the geography, the customs of the people, their music, the geology, fossils, scenery and poetic beauties of the land through which he traveled and in which he worked. The book is abundantly illustrated with a colored map and with over seventy plates from the author's photographs. It is a work for the laity as well as for the profession and many a physician might gain by reading it a profitable awakening of his interest, not alone in sleeping sickness, but in the manifold objects and interests which appeal to the scientific and human mind in lands beyond his own.

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THE PREVENTION AND CONTROL OF CANCER.

At the annual session of the Medical Society of the State of Pennsylvania in Philadelphia in 1909, one of the sessions on Sept. 29 was devoted to a symposium "Looking to the Increased Knowledge of Cancer." At this session a series of ten affiliated papers on various aspects of the topic of cancer was presented, and these papers were published in the issue of the *Pennsylvania Medical Journal* for November of that year. As a result of this meeting and of the growing realization of the profession of the steadily increasing prevalence and menace of cancer, the Pennsylvania Medical Society appointed a commission on cancer to study and investigate the subject and to report on methods of education in the prevention and control of the disease. The chairman of this commission was Dr. J. M. Wainwright of Scranton, Pa.

At the session of the Pennsylvania Medical Society in Harrisburg in September, 1911, this

commission presented a report, detailing the progress of its work up to that time.

"The principal work in connection with public education has been the preparation of a series of six short articles giving the information that the laity should have concerning cancer in various portions of the body. These will be sent to all the leading newspapers in the state with the hope that beginning next month all the newspapers will publish one article simultaneously each week.

"The most elaborate work that the Commission has undertaken has been the gathering of statistics during the past year that indicate as nearly as possible the condition in which the cancer patients come to the surgeon. Four hundred reports were received from surgeons all over the state, and while the total number is not large the very wide distribution of the source makes the summary of these statistics of considerable value, and tables giving the more important facts are printed herewith.

"Of these cancer cases 146 were males, 236 females, the remainder unspecified. The average age for the entire number was 51 years. A further analysis of these statistics can best be made by dividing the total number into superficial cancers and deep-seated cancers. The first striking result of this tabulation is that even in the superficial cancers only 68% are operable when the patients come to the surgeon, and of the deep-seated cancers only 48%, or less than one-half, are operable when they come to the surgeon. Furthermore, even these figures are undoubtedly much lower than the actual facts. This is because nearly every busy surgeon will see many cases in consultation or in the admitting room of a hospital that are so clearly inoperable that he returns the patients at once to their family physician or passes them along to someone else for palliative treatment and does not stop to make any record. The surgeon's records, therefore, are made up mostly of cases on which he does operate, and most of the other cases do not come to record at all. Even setting aside this source of error it is a distressing fact that only 68% of superficial cancers and only 48% of deep-seated cancers are operable when the patients come to the surgeon.

"Another important fact derived from these reports is that in 39% of the superficial cancers and in 46% of the deep-seated cancers there has been a precancerous condition or a chronic irritation. In other words, in almost one-half of the patients that are sent to the surgeon with a fully developed cancer, there has been a previous condition which might have been cured and cancer might not have developed."

Following the statement of the commission there appeared in the report a paper by Dr. Longnecker on "Some Considerations of the Cancer

Problem"; and a further one by Dr. William L. Rodman, now president of the American Medical Association, on "The Early Diagnosis of Cancer." In conclusion the report stated that the reasons for undertaking this collection of data were, first, to convince everyone that "the only efficient treatment we now have for cancer is nearly always so far delayed that its real benefit reaches a comparatively small number; the much larger number are needlessly sacrificed. We believe that the reports as tabulated above demonstrate this beyond the need of further argument. Secondly, this work was undertaken to show if possible just where the greatest responsibility lies. It is, of course, to be proportioned to the medical profession on the one hand and the general public on the other. There is the greatest possible room for improvement in both, but of the two it would seem that the medical profession should show a marked improvement first. We cannot view with complacency the fact that, as a general average, cancer patients have been under the care of their family physicians for over a year before they applied for a radical cure. We believe that this state of affairs is somewhat of a reproach to the medical profession and we believe that we have indicated that after-commissions will find their most useful work in improving the general attitude of the medical profession itself towards cancer."

For five years the cancer commission of the Pennsylvania Medical Society has actively continued the work thus begun and has published from time to time reports of progress and papers bearing on different aspects of the subject. Finally in January of this year the society formulated a plan to extend this work by securing the coöperation of medical journals throughout the United States, each of which should publish in July a special issue devoted wholly or in part to topics connected with cancer. Seventy-three periodicals accepted this invitation and agreed to enter into the plan; and the present issue of the JOURNAL represents its contribution towards this movement.

As a leading article we present an address prepared for delivery by Dr. Edward Reynolds of Boston at the annual meeting of the Massachusetts Medical Society last month. In this article Dr. Reynolds emphasizes some of the newer views of cancer and their present relation to the responsibility of the practitioner. It is significant that of the four other special

articles on cancer which compose the remainder of this issue, three deal with different aspects of cancer of the uterus. This selection was an intentional point of emphasis, since this form of cancer is not only numerically the most frequent but is practically the most preventable of all types. A very large proportion of cancers of the uterus originate in neglected and unrepaired lacerations of the cervix. Habitual care and timely repair of all such lacerations would practically eliminate such cancers of the uterus, leaving only those originating in the body or fundus. This, of course, can be made possible only by the education of the public to an appreciation of the danger and preventability of cancer of the cervix and education of the profession to an appreciation of the importance and the proper methods of observation and treatment of the lacerated cervix.

At the beginning of his address Dr. Reynolds calls attention to the work of the American Society for the Control of Cancer during the past two years. This Society has recently made a special study of cancer conditions in New England, a region in which cancer is more prevalent, especially among the older Yankee families, than in any other part of the country. The Society has recently issued as a circular an abstract from the *Quarterly Bulletin of the New Hampshire State Board of Health* for January, 1915, containing a review of cancer in that state, together with admirable advice to the public in regard to the necessity of early recognition and operative treatment. The article in which this review is presented is by Dr. Irving A. Watson, secretary of the New Hampshire State Health Department.

"Dr. Watson reviews the statistics of cancer in New Hampshire from 1884 to 1913, and shows that there has been a steady increase in the number of recorded deaths from 210 in the first year to 453 in the last year of that period. The total number of deaths from cancer for the entire period of thirty years was 9096. Of this number 3075 were males and 6021 were females. During the period reviewed the cancer death rate in New Hampshire increased from 5.93 to 10.42 per 10,000 of the population. Some people hold that much of the apparent increase of cancer is due to more correct diagnosis and better certification and statistics, but Dr. Watson does not believe that these factors can alone account for the increase of the disease in New Hampshire.

"The State Board of Health has therefore joined in the efforts which are now being made for the control of cancer by educational meth-

ods. The State Laboratory has also undertaken to assist the physicians in the early recognition of the disease by examining suspected cancerous material whenever submitted.

"The American Society for the Control of Cancer has undertaken to conduct a national campaign of education in regard to this disease, following the example and methods of the campaign against tuberculosis. The National Society is coöperating with state and local boards of health, medical societies, women's clubs, and other organizations in order to disseminate the latest knowledge about malignant disease. If the people of New Hampshire would carefully read and take to heart the sound advice given by the State Board of Health it may well be expected that the mortality from cancer in New Hampshire will begin to show a decrease."

In another column of this issue of the JOURNAL we publish a further statement by the secretary of the American Society for the Control of Cancer on "The Organization of National and Local Forces in the Campaign against Cancer." This statement presents most effectively the methods suggested and in part actually adopted by the Society in its work thus far, and should emphasize to readers the importance of organized efficiency and coöperation in dealing with this problem of public health.

Finally, in a communication from Dr. William Seaman Bainbridge of New York, we record what is perhaps the best summary that has appeared of the tenets to be enjoined in the dissemination of education on the subject of cancer. Above all, it should be remembered that this education needs to be equally of the profession and of the public, making the one capable and the other willing to perform its part in this movement for the prevention and control of one of the most relentless and inexorable scourges of mankind.

THE DUCTLESS GLANDS AND DIABETES.

THE relationship of the ductless glands to diabetes presents an interesting and instructive problem. The liver is concerned with sugar metabolism, the sugar being stored in the liver as glycogen when there is an over-supply of sugar in the body. If the supply of sugar is lowered or there is no intake or there is an over-use—in other words, when for one reason or another, the demand is greater than the supply—the liver cells proceed to produce sugar from proteins, and, in rare cases, even from fats. It

must be remembered, however, that the formation of sugar in the liver is controlled by the nervous system, certain ductless glands and their hormones. The rôle of the various endocrinous glands is being understood. This subject is taken up in an interesting manner by Croftan (*Illinois Medical Journal*, Vol. xxiii). A review of the most important facts may here be given.

The pancreas inhibits the conversion of glycogen into sugar and its supply to the body, so that underactivity or absence of activity of the pancreas from any cause, disease or experiment, causes hyperglycemia and glycosuria, with the breaking down of proteid and fat to sugar, which is at once discharged into the system. The adrenal glands stimulate the conversion of glycogen into sugar, and therefore have an action antagonistic to the pancreas. As proof we may mention that adrenalectomy is followed by hypoglycemia; in Addison's disease sugar tolerance is high and adrenalin glycosuria (from experimental injection of adrenal) is almost impossible. The thyroid gland stimulates adrenal activity, but it is antagonistic to the pancreas. For example, thyroidectomy leads to increased sugar tolerance and absence of adrenalin glycosuria due to hyperfunction of the pancreas; in myxedema there is increased sugar tolerance and absence of adrenalin glycosuria, while in thyroid feeding and in Basedow's disease there is decreased sugar tolerance and even glycosuria. That the parathyroids inhibit thyroid activity seems to be proved by the fact that there is reduced sugar tolerance and easily produced adrenalin glycosuria following parathyroidectomy; no glycosuria occurs after pure thyroidectomy, but when the parathyroids are removed in addition to the thyroids hyperglycemia and even glycosuria soon appear. The pituitary or hypophysis is antagonistic to the pancreas, but it is overactive in adrenal hyperfunction and in thyroid hypofunction. We find, for example, glycosuria to be common in acromegaly, whereas the sugar tolerance is increased in Fröhlich's adiposo-genital dystrophy.

From the work done in this field and from the results obtained, Croftan justly concludes that the ductless glands are intimately related to carbohydrate metabolism. Furthermore, the sympathetic nervous system directly or indirectly through the adrenals (which are parts of the "chromaffin system" scattered through the sympathetic nervous system) seem largely to govern these activities, as proved by experiments

with pique, which acts centrally on the sympathetic apparatus, and adrenalin, which acts peripherally on the sympathetic apparatus. It has also been found that where the ductless glands inhibit or stimulate, there is a reversibility of action, so that the two glands antagonize or enforce one another mutually. It may be asserted, as Croftan says, that "the whole process is concerned with establishing and maintaining under widely varying conditions the balance that must normally exist between the autonomous and sympathetic nervous system in order that the somatic processes of life may be properly carried out." From the curative standpoint Croftan does not believe that the administration of gland products promises much for the future, since, after all, it is but temporary substitution therapy. He admits that grafting of deficient gland elements or removal of hyper-functioning glands are possibilities.

RECENT MEDICAL MEETINGS.

DURING the past month there has been an unusually large number of medical meetings in the United States, especially in California in conjunction with the Panama-Pacific Exposition. Most notable of these were doubtless the meetings of the American Medical Association and of the Pan-American Medical Congress. In conjunction with these there also assembled in San Francisco the following non-affiliated societies during the month of June: the Pacific Coast Oto-Ophthalmological Society, June 14 to 16; American Society of Tropical Medicine, June 14 to 16; American Association of Medical Milk Commissions, June 17 to 19; American Climatological and Clinical Association, June 18 and 19; American College of Surgeons, June 21; Medical Society of the State of California, June 21; American School Hygiene Association, June 25 and 26; American Association of Medical Examiners, June 21; American Therapeutic Society, June 21 and 22; American Proctologic Society, June 21 and 22; American Hospital Association, June 21 to 25; Medical Association of the Isthmian Canal Zone, June 23 and 24; Pacific Association of Railway Surgeons, June 25; American Academy of Medicine, June 25 to 28.

At the opening session of the sixty-sixth annual convention of the American Medical Association

on June 22, the principal address was delivered by the president-elect, Dr. William L. Rodman of Philadelphia on "Safeguards for Surgery," describing particularly the work and aims of the American College of Surgeons. Among the various section meetings one of the most important was that of the section on surgery on June 25, which was devoted to a symposium on military surgery. It was voted to hold the next meeting at Detroit, Mich., in 1916. Dr. Rupert Blue, surgeon-general of the United States Public Health Service was elected to succeed Dr. Rodman as president next year.

The fortieth annual meeting of the American Academy of Medicine was held in San Francisco from June 25 to June 28, inclusive. At the opening session on June 25 the presidential address was delivered by Dr. Woods Hutchinson of New York on "The Physician as a Pioneer"; and the annual address by Mr. David Starr Jordan on "The Relation of Medicine to the Peace Movement." The general subject of the entire meeting was "Medicine in Its Relationships to Commerce and Transportation." In this connection Dr. W. C. Rucker, assistant surgeon-general of the United States Public Health Service, presented an address on "The Transmission of Typhoid Fever on Trains and Steamboats"; Dr. Henry B. Hemenway of Evanston, Ill., on "The Transportation of Consumptives"; and Dr. C. W. Hopkins of Chicago on "The Hospital Organization of Railway Systems." Dr. Rupert Blue, surgeon-general of the United States Public Health Service, was elected an honorary member of the Academy. In his presidential address Dr. Hutchinson spoke in part as follows of the function of the physician in the development of new communities:

"The real enemy of the pioneer, the chief obstacle to the spread of civilization is not Indians, or wolves, or rattlesnakes, or even famine or flood, or winter cold or tropic heat,—but insects. Most schemes of colonization that failed—failed not from famine or the attack of enemies, but through disease. And more than half of them from one disease—malaria. This is not merely the Age of Man, but the Age of Insects, geologically considered, and the battle is to the death between them for the possession of the earth.

"In the tropics, the insects get the whip hand of man and keep him stupid, short-lived, uncivilized. It was the Plague of Flies, the bloody tyranny of insects, that drove man out of the warm, comfortable, fertile tropics into the chilly, rain-swept, half-the-year-frozen north. Now grown to full human stature, he is coming back

to invade and reconquer the tropics and put to flight the ancient foes of the race.

"In an earlier day the first requisite of a new colony for a pioneering expedition was a captain, a bold and skilful fighting man, with muskets for every grown man in the party, and plenty of powder and ball. But now the first and most fundamental requirements of a new colony are a doctor-engineer, with microscope and test tubes, spades and trenching machines, and plenty of quinine, kerosene and mosquito netting.

"New countries can and ought to be models of health, efficiency and comfort for the older communities, and could easily be made so at moderate expense if the physician pioneer be given a free hand in advance, as Gorgas was at Panama. In fact, we can pretty nearly assure success if the soil be good and the water sufficient.

"It must be remembered in fairness that bad as insects are, they do not originate the diseases they spread, but only carry them from one infected human being to other healthy ones. Deprive them of their source of infection and they become comparatively harmless. A few weeks' isolation or appropriate treatment with quinine, salvarsan, thymol, etc., would be sufficient in the vast majority of cases to clear up all risk. Physical examinations would be worth twice their cost to the individuals examined alone; and, in combination with a proper sanitary survey, turn new countries and new colonies into little health-heavens on earth."

The next session of the American Academy of Medicine will also be held at Detroit, Michigan, in 1916, and its general topic will be "Legislation and Medicine."

The seventy-first annual meeting of the American Institute of Homeopathy was held in Chicago from June 28 to July 2, inclusive, and was attended by members from all parts of the United States. In conjunction with this meeting the National Society of Physical Therapeutics held its twenty-second annual session on June 30. Among the papers presented was one by Dr. James Searson of London, a British surgeon attached to the Anglo-American Homeopathic Hospital in Paris. At the session of the Institute on July 1 Dr. Henry C. Aldrich of Minneapolis was elected president for the ensuing year and it was voted to hold the next annual meeting at Baltimore. The following are the remaining officers elected:—

First vice-president, Dr. T. E. Costain, Chicago; second vice-president, Dr. Cornelia Brant, New York; treasurer, Dr. Thomas Franklin Smith, New York; secretary, Dr. Sarah M. Hobson, Chicago; registrar, Dr. M. D. Forbes, Hot Springs, Ark.; trustees, Dr. E. M. Dearborn,

New York; Dr. J. Richey Horner, Cleveland; Dr. Byron E. Miller, Portland, Ore.

Particular attention was devoted at one of the sessions to the therapeutic value of tincture of alfalfa as a remedy for indigestion and mental depression.

MEDICAL NOTES.

HONORARY DEGREE FOR DR. STILES.—In last week's issue of the JOURNAL we noted the conferring of the honorary degree of doctor of science by Yale University on Dr. Charles W. Stiles. In conferring this degree the president said: "Five years of foreign study, arduous research and the spur of visible suffering have fitted and impelled Dr. Stiles to attack the obscurities of parasitic disease. Both brutes and men owe him gratitude. He is the discoverer of the American hookworm, that widespread and dreadful scourge of the South. By his investigation and through his propaganda an entire people is being lifted to a higher plane of physical and economic being."

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALLPOX, AND TYPHOID.—The weekly report of the United States Public Health Service for June 25, 1915, states that during the month of May, 19 cases of cerebro-spinal meningitis and five of poliomyelitis were reported in Massachusetts. During the same month there were 115 cases of smallpox in Minnesota and 101 in Wisconsin. There were also 129 cases of typhoid fever in Massachusetts, 74 in Maryland, 54 in New Jersey and 35 in Minnesota.

CONSTITUTIONALITY OF THE HARRISON LAW.—Report from Chicago states that before the United States District Court a suit has been entered against a physician charged with aiding drug habitues to procure morphia and cocaine in violation of the Harrison anti-narcotic law. It was argued before Judge Landis by the council for the defendant that this law is unconstitutional because it denies the drug users their inalienable right to the pursuit of happiness.

MORTALITY RATES IN THE WESTERN HEMISPHERE.—Statistics of death rates from principal causes have been drawn up by the Prudential Insurance Company covering sixteen leading cities of North and South America. The diseases causing the largest percent. of deaths in these respective cities of North America are as follows. Except as otherwise stated, the figures cover the years 1908 to 1912.

| | |
|--|------|
| Montreal—Diarrhea and enteritis..... | 21.8 |
| Winnipeg—1910-1912—Diarrhea and enteritis..... | 18.1 |
| Vancouver—1911-1913—External causes..... | 11.5 |

| | |
|--|------|
| Boston—Pneumonia..... | 11.5 |
| New York—Pneumonia..... | 13.6 |
| Washington—Tuberculosis..... | 13.4 |
| Chicago—Pneumonia..... | 14.2 |
| Denver—Tuberculosis..... | 20.8 |
| San Francisco—Organic heart diseases..... | 13.5 |
| Los Angeles—Tuberculosis..... | 18.4 |
| New Orleans—Tuberculosis..... | 12.9 |
| Havana, Cuba—Tuberculosis..... | 17.6 |
| Kingston, Jamaica—Diarrheal diseases..... | 13.3 |
| Mexico City, Mexico—Diarrhea and enteritis..... | 23.3 |
| San Salvador, Salvador—Diarrhea and enteritis..... | 16.7 |
| City of Panama, Panama—Diarrhea and enteritis..... | 19.5 |

LONDON DEATH-RATES IN MAY.—Statistics recently published show that the total death-rate of London in May, 1915, was only 14.6 per 1000. Among the several districts and boroughs, the highest rate was 23.1 in the central portion of the city, and the lowest was 11.1 in Wandsworth on the south.

DECLINE OF THE FRENCH AND BRITISH BIRTH RATE.—In previous issues of the JOURNAL we have called attention to the probability of an acceleration in the decline of the European birth rate as a result of the present war. Naturally this effect is now beginning to make itself felt with increasing obviousness. During June the number of births in London alone was nearly 500 less than that of the corresponding period during the past five years, and a similar ratio of decline prevails elsewhere in Great Britain. Moreover, during the past quarter the number of deaths among infants has been 200 a week more than during the corresponding period of 1914.

Report from Paris on July 1 states that the decline in the French birth rate has been particularly noticeable during the current year. The rate in 1914 averaged 1000 births daily, but at the beginning of 1915 the figures dropped to 850, and there has been a rapid decline since then. In the week of June 6 to June 12, which was the last week recorded, there were only 356 births in the entire country.

EUROPEAN WAR NOTES.—During the period from Feb. 14 to May 20, 1915, there were reported in Europe 232 cases of typhus fever in Egypt, 240 in Germany and 833 in Moscow. From August 1, 1914 to April 24, 1915, there were 5489 cases of the disease in Austria-Hungary.

Report from London on July 2 states that the parliamentary under-secretary of war recently presented to the House of Commons statistics confirming the remarkable efficacy of anti-typhoid inoculation in the prevention of disease among the British troops.

"In the British expeditionary force in France there had been only 827 cases and 128 deaths up to May 27. Of this number 508 cases were per-

sons who had not been inoculated and 106 of these died. There were only 22 deaths among the 308 men inoculated who, despite inoculation, contracted the disease."

Report from Madrid by way of Paris on July 5 states that the pharmaceutical college of Spain reports an acute shortage of drugs in that country on account of the withdrawal of the source of supply of many important drugs produced in Germany.

On June 12 a surgical unit from the University of Pennsylvania sailed from New York aboard the steamship *St. Louis* for France, to assume charge of a ward in the American Ambulance Hospital at Neuilly, Paris. The personnel of this unit consists of ten surgeons and four nurses, the former being Dr. J. William White; Dr. James P. Hutchinson, who will be the managing head of the unit; Dr. Daniel J. McCarthy, neurologist; Dr. Edmund B. Piper; Dr. Walter Estell Lee; Dr. Arthur E. Billings; Dr. Peter M. Keating; Dr. Samuel Goldschmidt, bacteriologist; Dr. Thomas C. Aller and Dr. David M. Davis, of Johns Hopkins University. The period of service of this unit will be three months, beginning July 1.

On July 10, the total of the principal New England relief funds for the European War reached the following amounts:—

| | |
|------------------------|--------------|
| Belgian Fund..... | \$265,114.23 |
| Red Cross Fund..... | 135,965.10 |
| Jewish Fund..... | 64,737.27 |
| Serbian Fund..... | 34,121.19 |
| St. George's Fund..... | 10,517.60 |

It is reported by cable that the second Harvard surgical unit, which sailed from New York on June 25, has safely reached Falmouth, England, and has proceeded thence to London.

ROCKEFELLER WAR RELIEF COMMISSION.—The recently published report of the War Relief Commission of the Rockefeller Foundation describes the work of that organization among noncombatants in Europe since November, 1914. This investigation covered the entire field of the war with the exception of Turkey and Italy. The suffering and destitution were exaggerated in Serbia and Montenegro by the epidemic of typhus, which has now been largely checked by the work of the American Sanitary Commission under Dr. Richard P. Strong. Suffering is now most acute in Russian Poland and in part of Galicia. In its relief work in Poland the commission has been particularly aided by the co-operation of the German government, a co-operation which the report describes in part as follows:—

"The German government agreed to furnish \$500,000 a month for the purchase of food, and to stop all requisitions in Poland, as soon as the relief work began. Efforts to obtain grain from other countries in Europe for shipment to Poland were, however, unsuccessful. That sit-

nation has now been taken care of, as the German government has recently advised the commission that, having completed an inventory of the food supplies available at home, Germany found itself in position to assume entire responsibility for the relief of that part of Poland under its control. The commission for relief in Poland then restricted its attention to efforts in the district controlled by Austria, namely, southern Poland and Galicia. There, again, the greatest difficulty was experienced in obtaining grain from outside, but word has now just been received that the work initiated by the international commission in that territory will be assumed by the National Austrian Committee."

The headquarters of the Commission has now been established in Switzerland, where it will continue its work throughout the war.

EFFICIENCY OF THE GERMAN RED CROSS.—In a recent issue of the American Red Cross monthly magazine is an article by Dr. Kimmle, secretary of the German Red Cross organization, describing the work of the German Red Cross during the present war. The German Red Cross was mobilized simultaneously with the army in 1914 and at present has over 5000 nurses in the field.

"The nurses of the German Red Cross are divided into three classes, the first being the Red Cross Sisters, who for years have carried on the profession of nursing. Second class, the volunteer auxiliary sisters, who undergo one-half year's training, pass an examination, and who are called out from time to time to take part in repetitive courses and practical service in military hospitals. The third class comprises the volunteer helpers of the Red Cross. They are employed only in the home military hospitals, and even then only under the supervision of tried nurses.

"Over 60% of the Red Cross nurses, about 5500 in all, are now on the battlefield or in the field, war, and base hospitals. The remainder are at home, nursing not only sick and wounded soldiers, but also men, women and children of the civil population.

"Beside the female personnel, we have a male staff of stretcher bearers and sick attendants. They receive their training in the First Aid Detachment of the Red Cross and the Red Cross Association of Voluntary Attendants, as well as a number of the Samaritan Societies of the Red Cross. At the beginning of the war these organizations numbered from 70,000 to 80,000 men, and this number has materially increased.

"They are uniformed and equipped according to regulations, and form an army of 'Caritas.' About 20,000 men have been sent to the front or base, where they do service in army hospitals and in the depots, while a still larger number do service in army hospitals and Red Cross trains and the home military hospitals.

"We have army, Red Cross and auxiliary hospital trains and ambulances, these last being

complete ambulatory field hospitals, with all the comforts that a stationary field hospital affords its patients. The War Department hospital trains, classified by numbers, and the Red Cross trains, classified by letters of the alphabet, are about the same. They consist of fourth-class vestibule cars, that allow the physicians and nursing corps to get quickly and easily from one end of the moving train to the other. The wounded lie on stretchers, on which, in the Red Cross trains, are mattresses, and are protected from cold by blankets enclosed in washable linen cases. Ten such hospital trains the central committee of the Red Cross had completed shortly after mobilization, and there are now in the entire organization of the Red Cross several dozen.

"Besides aid to the sick and wounded, the Red Cross undertakes the duty of doing everything necessary for the families of the men called to arms. The state grants do not wholly cover all needs. The women of the Red Cross have tried to embrace in their grasp all those who require additional aid and care for them with self-sacrificing devotion and broad understanding."

BOSTON AND NEW ENGLAND.

RABIES EPIDEMIC IN MASSACHUSETTS.—On account of the prevalence of rabies in dogs throughout various cities and towns of this state quarantines have been declared in Cambridge, Belmont, Waltham, Gloucester, Rockport and Sterling, and precautionary measures have also been taken in Dedham. These quarantines were put into effect at the request of Dr. Lester H. Howard, commissioner of the Bureau of Animal Industry, and it is reported that he will ask for a continuance of the quarantine in Wakefield. The State Board of Health has on record twelve persons who are undergoing the Pasteur treatment for rabid dog bites. Fortunately the city of Boston so far has escaped the epidemic. Records show that only three cases of rabies have occurred in Boston this year and those occurred some time ago. On July 2 it was reported that all dogs in the town of Northbridge, Mass., are to be either leashed or muzzled on account of a dog who recently developed rabies in that town after being bitten by a stray dog. No one, so far as is known, was bitten by the animal.

CASE OF PELLAGRA IN WALTHAM.—On July 1 a case of pellagra was reported in Waltham, Mass., in the person of a woman formerly a resident of Newton. The diagnosis has been confirmed and the patient transferred to a state institution for treatment.

DECREASE OF BOSTON MARRIAGE RATE.—During the month of June, 1915, there were in Boston 140 fewer weddings than during the same period in 1914. During the first six months of this year there were in this city only 4638 mar-

riages as compared with 4985 during the first half of 1914.

TRANSFER OF MEDICAL INSPECTION OF SCHOOLS.—In a previous issue of the JOURNAL we noted the proposal to transfer the function of the medical inspection of schools in Boston from the health department to the school department. On June 8 the Boston Board of Health passed the following vote:—

"It was voted by Messrs. Mahoney and Mulowney that the Board of Health shall on and after the first day of July, 1915, maintain no longer the medical inspection of the children in the public schools of the city, as the school committee has voted to exercise the powers and to perform the duties provided by law for the appointment of school physicians, and for the maintenance of such medical inspection."

This action is being contested by the school physicians to whom a hearing was given by the Board of Health on July 2, their chief objection being the proposition of the school committee to reduce the number of school physicians from eighty to forty. The Board of Health has issued a statement upon the subject, reading in part as follows:—

"The school committee by Chapter 357 of 1907 is required to appoint a supervising nurse and district nurses; these nurses by Section 1 of this chapter are to assist the medical inspectors in their work in the public schools. The school committee is allowed 2% on every \$1000 of the valuation upon which the appropriations of the City Council are based to meet the expenses thus incurred—roughly speaking, \$30,000. Such division in the charge and control of the work of medical inspection of public school children by having the school committee appoint the nurses and by having the Board of Health appoint the school physicians seemed to the Board of Health unnecessary and to result in less efficient service than if the complete authority over the subject were reposed in one department.

"The Board of Health has been unable to secure jurisdiction over the nurses, and now that the school committee has voted to take over the functions of medical inspection, believes that the best interests of the public require the Board of Health to relinquish such medical inspection."

COMPLIANCE WITH THE TUBERCULOSIS DISPENSARY LAW.—In previous issues of the JOURNAL we have commented from time to time upon the progressive compliance of the various cities of this Commonwealth with the law requiring the establishment of local dispensaries for the diagnosis of tuberculosis. It is stated by the Massachusetts Commissioner of Health that this compliance is now rapidly progressing.

"There are fifty-four cities and towns in Massachusetts of more than 10,000 inhabitants that come within the scope of the law and twenty-nine of them have already established dispensaries which have received the approval of the

State Department of Health. These are Boston, Worcester, Fall River, New Bedford, Springfield, Lawrence, Somerville, Malden, Haverhill, Salem, Newton, Brookline, Northampton, Leominster, Attleboro, Peabody, Woburn, Newburyport, Gardner, Marlboro, Clinton, Milford, Framingham, Watertown, Southbridge, Webster, Methuen, Arlington and Winthrop. In some instances, notably Malden and Winthrop, it is the intention to make the scope of the dispensaries even greater than the law requires. They will be housed in separate buildings and will be known as public health dispensaries. They will be headquarters for work looking toward the elimination of conditions which are favorable to tuberculosis and other diseases.

In addition to the twenty-nine places that have already complied with the law, fifteen others have provided dispensaries or have voted the money for them, and their arrangements probably will receive the approval of the state department within a short time. Included among these are Lowell, Cambridge, Taunton, Quincy, Gloucester, Chelsea, Pittsfield, Waltham, Chicopee, North Adams, Revere, Adams, Weymouth, Plymouth and Wakefield. This leaves only ten other cities or towns that are not immediately in line with the law."

MASSACHUSETTS HOSPITALS FOR CONSUMPTIVES.—The recently published eighth annual report of the Trustees of the Massachusetts Hospitals for Consumptives covers the four institutions under the control of that board, the North Reading, Lakeville, Westfield and Rutland Sanatoria. At the North Reading Sanatorium during the past year the daily average of patients has been 195 as compared with an average of 190 last year, and an original capacity of 150. Additions were made to the Lakeville State Sanatorium which increased the capacity of the hospital by 34 beds and the daily average of patients was 245. At the Rutland State Sanatorium the daily average of patients was 350. The admissions were 469 and the discharges 476. The daily average of patients at the Westfield State Sanatorium was 234. This hospital is now caring for over 100 children twelve years of age and under. The importance of childhood infection is coming to be recognized as a most important factor in anti-tuberculosis work, and the board wishes to impress upon physicians and anti-tuberculosis workers throughout the state the absolute necessity of recognizing and treating tuberculous children if progress is to be made in combating the disease. It urges the study of infection in children and the necessity of making an early diagnosis. The bulk of the patients at present under treatment in the state sanatoria represent the result of infection contracted when children. To arouse interest in the importance of this subject the Board sent out to every registered physician in the state a letter calling attention to this subject.

TYPHOID FEVER IN MANSFIELD.—The recently published bulletin of the Massachusetts State Department of Health for April, 1915, contains a brief study of two outbreaks of typhoid fever occurring in Mansfield, Mass., within the past year.

"During the months of August, September and October, 1914, and March, 1915, there were 47 cases of typhoid fever reported to the Board of Health of Mansfield. For the six preceding years there had been but 3 cases, 2 in 1911 and 1 in 1913. In the recent outbreaks, which were six months apart, 29 cases were reported in 1914 and 18 in 1915, the majority of the patients being women and children.

Investigations were made during the fall outbreak and it was found that all of the cases were on the route of one milk dealer. On account of this fact, and of the explosive character of the outbreak, it was concluded that the infection was conveyed by milk. The dealer in question, who supplied about 160 families, was not a producer but purchased from five dairies in the neighborhood. No cases of disease were discovered at any of these farms. Unfortunately, no specimens of blood from any of the milk dealers involved were examined by the Widal test.

No more cases of typhoid fever occurred in the town until the first of March, 1915, when, in the course of ten days, 18 cases were reported, all of the patients taking milk from this dealer. The second outbreak was of the same character as the preceding. The milk supply from this dairy was shut off. Laboratory investigations were undertaken immediately. Widal tests were made of the blood from members of the family of the milk dealer and those selling to him. A positive Widal reaction was obtained from the blood of the child of the milk dealer and an atypical reaction in the case of the wife. Typhoid bacilli were isolated from the urine of the child.

Considered epidemiologically, it seemed as if there were a common source of infection for these two outbreaks. There is the possibility that the milk dealer's wife and child, who visited Rhode Island in July, 1914, may have become infected there with typhoid and one or both become carriers."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending July 6, 1915: Diphtheria, 55 of which 6 were non-residents; scarlatina, 49, of which 10 were non-residents; typhoid fever, 1; measles, 132; tuberculosis, 51, of which 2 were non-residents. The death rate of the reported deaths for the week was 11.77. Low though it is, this rate is slightly higher than that of the corresponding week last year. This is due partly to the increased incidence of diarrheal diseases of infancy during the recent wet weather, partly to the steady increase in deaths from cancer and cardio-renal degeneration.

Miscellany.

THE ORGANIZATION OF NATIONAL AND LOCAL FORCES IN THE CAMPAIGN AGAINST CANCER.

BY CURTIS E. LAKEMAN,

Executive Secretary, American Society for the Control of Cancer.

THE American Society for the Control of Cancer has recently urged that every state medical society take an active part in arranging meetings and in spreading among all members of the profession the latest knowledge of malignant disease. At the suggestion of the Cancer Committee of the Pennsylvania State Medical Society, many journals will devote their July issues to this subject. It has been pointed out that the American Society for the Control of Cancer might take this timely opportunity to state its view of the relations between the various bodies which are concerned in this campaign. The suggestion is welcome. If, indeed a clear understanding can be reached as to the most effective division of functions and duties among the various organizations, national, state and local, interested in this subject, a long step will have been taken toward the conquest of malignant disease, in so far as that ideal can be approached by the practical application of present knowledge.

The National Society. The American Society for the Control of Cancer sets up no claim of priority or originality in preaching to the public the necessity of early recognition and treatment of this disease. The organization was effected under the inspiration of numerous similar movements in this country and in Europe. From the first it has been inspired only by a sincere ambition to coördinate all existing forces into a single irresistible nation-wide effort to reduce the cancer death rate by imparting the necessary knowledge and inspiring the will to believe and act upon it. Those who direct the policy of the Society have no illusions that they are "called" above others to this task. They firmly believe that all sincere workers should unite in a single well considered national movement. If the present Society fails to meet the requirements of such a movement it must give place to some agency that will do so, leading the campaign against malignant disease with as conspicuous ability and success as the National Association for the Study and Prevention of Tuberculosis has directed the war on consumption.

Relation to the Professional Societies. While the Cancer Society found its first impulse in the work of a committee of the American Gynecological Society, the movement was broadened at its very inception by the appointment of organizing delegates from the American

Surgical Association, the American Dermatological Association, the Association of Pathologists and Bacteriologists, and practically all the similar special organizations which met in Washington in May, 1913, as the Congress of American Physicians and Surgeons. Definitely launched in New York on May 22, 1913, the movement received within a few months the official endorsement of the American Medical Association, the Clinical Congress of Surgeons, the Western and the Southern Surgical and Gynecological Societies and a number of sectional and state organizations. All these professional bodies have endorsed the design of the National Cancer Society as expressed in its Constitution:—

"To disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer, to investigate the conditions under which cancer is found and to compile statistics in regard thereto."

Relation to Cancer Research. It will be seen that this purpose comprises not only the conduct of an educational campaign, but the gathering of information in regard to this disease. In what relation, then, does the Society stand to the various American cancer research institutions and workers? The answer is that the Society does not contemplate the prosecution or support of biological research, already so ably pursued under the auspices of our leading universities. With these workers in the field of pure science mutually helpful relations have developed. Indeed a notable collective expression of their attitude is regarded as a very cornerstone of the educational movement. A few years ago the eminent laboratory students placed on record in the transactions of their official organization, the American Association for Cancer Research, their conviction that pending the discovery of the ultimate nature and cause of cancer, a far more effective dissemination and utilization of the vast store of present knowledge of the disease is urgently called for. Formed to carry out this very object, the "Control" Society depends upon the constant support and co-operation of the institutions represented in the "Research" Society. Many of the foremost American students of cancer are prominent in the membership of both organizations. Machinery is thus provided for the wider dissemination among the profession and the people of the essence of the newest knowledge of malignant disease, fresh from its laboratory sources.

Relation to Statistical Investigations. The Society does, however, contemplate original work in the collection and collation of statistical data, and will expand this feature of its program as fast as its resources permit. The statistics of cancer mortality need to be improved both as regards their collection and their publication. The merest suggestion by the Society to the U. S. Census Bureau has been sufficient to initiate a notable advance in this respect. With the greatest possible interest and zeal, Mr. Har-

ris, the late Director of the Census, and his successor, Mr. Rogers, have undertaken the preparation of a special report on the cancer mortality of the U. S. Registration Area in 1914. The number of deaths will be stated in full detail under some thirty titles of organs and parts of the body affected, instead of, as hitherto, merely under the six general groups of the International List. The Imperial Cancer Research Fund has long urged that it is only on the basis of such detailed data for the various organs that a true conclusion can be reached as to whether or not cancer is increasing. For the first time in the United States the data will now be at hand, as it is in England and Wales, through the reports of the Registrar-General, for the prosecution of such inquiries.

The Census Bureau will also for the first time in this study make a distinction between returns based on certain and on doubtful diagnosis. To secure the additional information needed for this distinction the Bureau is sending tens of thousands of letters to physicians who have certified deaths from cancer asking whether the diagnosis was based on clinical findings alone or was established by surgical intervention, microscopic examination, or autopsy.

All this, it will be realized, is a large amount of work for even a government bureau to undertake. Much of it should be done in the first place by the registration offices and the boards of health of the several states, where the original certificates of death are filed. It will be the duty of the American Society for the Control of Cancer to urge upon the various state officials the need of undertaking this work in order to insure the permanence of the advance in the statistical study of cancer which has been inaugurated by the Census Bureau.

But the Society is also interested in special statistical studies of the geographical, racial and occupational distribution of cancer, and above all in collating, upon a uniform plan, the records of surgical treatment of the disease in the leading hospitals. It is important that an authoritative answer be available for all who ask just what percentage of success is to be expected in the treatment of each phase and each stage of this multifiform disease. All such studies the Society regards as fulfilling its fundamental purpose and in pursuing them it is everywhere receiving the most cordial encouragement and assistance from statistical offices and from the best hospitals and institutions.

Relation to Educational Agencies. The important and clearly established lessons derived from such studies of the sources of information must be given to the public. The Society has undertaken to do this directly, through its publications, its regular articles for the newspapers and its lectures. But in the large view it can best secure this object by enlisting the co-operation of all appropriate existing agencies which conduct educational work. Foremost

among these are the state and local departments of health, especially those which are devoting an increasing share of their energies to the spreading of the gospel of health by bulletins, exhibits and lectures. In the same category must be included the committees on public instruction, which in many states are conducting admirable campaigns of health education under the auspices of the state medical societies. Toward all these agencies the Society stands in the relation of the "producing" to the "distributing" end of a manufacturing business. With its wide outlook over the national field it is in a strong position to provide statistical material, to receive and pass on new knowledge, new experiences, new methods which have been found valuable in one field and should be used in others. In another view the Society may take the position of "middleman" between the research workers and statistical students, producing new facts about cancer at the sources of knowledge on the one hand, and on the other the many agencies, general and local, which will bring the practical bearings of this knowledge, new and old, directly home to the people. In general, then, one of the most useful functions of the Society is to act as a bureau of information and clearing house, which is at the service of all workers and institutions interested in the study and control of cancer.

Relation to State Committees. The relation of the National Society to similar movements within the various states should be clear from what has been said. In no case will the Society seek to set up local agencies to parallel work already adequately organized under the auspices of state medical societies and boards of health. Provision is made for local committees to be organized under the supervision of the resident directors of the National Society, wherever no state or local agency is in a position to undertake the work. Such groups will not be formed, however, except under full agreement with present state agencies. Where, as in Pennsylvania, under Dr. Wainwright, and similarly under the auspices of state medical societies in Maine, Wisconsin, Kansas, Colorado, Louisiana, Texas and many other states, active local committees are at work, every effort will be made to assist these groups in the manner already outlined and, so far as the constitutional limits of size permit, to secure from them representative delegates to the governing council of the National Society. At least one director from each state will eventually be chosen to act as a local correspondent who will inspire and stimulate work in his own state, while at the same time assisting in formulating the general policies of the National Society.

Relation to Other General Committees. It is an earnest of the good feeling and harmony with which the cancer campaign is evolving toward a single coherent national movement to consider the high degree of integration with other national agencies which has already been

attained. Some of these had begun effective work long before the present Society was established. Aside from such admirable local campaigns as that of the Pennsylvania Commission and the work inspired by Dr. C. C. Carstens in Michigan, the Clinical Congress of Surgeons of North America had in the field an active Committee on Cancer under the chairmanship of Dr. Thomas S. Cullen of Baltimore, the other members being Dr. Simpson of Pittsburgh and Dr. Howard C. Taylor of New York. This committee, as is well known, caused the publication of widely read and influential popular articles by Samuel Hopkins Adams. It is instanced merely as indicative of the get-together spirit that animates the National Society that all three of these men naturally took their places as members of the Executive Council of the new association. Subsequently the American Medical Association appointed a Cancer Committee representing its Council on Health and Public Instruction, and again, to avoid duplication of effort, the same men were made members of that committee. Dr. Frederick R. Green, the capable executive of this Council of the American Medical Association, has been from the first a director of the Cancer Society, and has given invaluable advice and cooperation in its publicity campaign, printing every week in the press bulletin of the A. M. A. a popular article on cancer prepared by the Society, which thereby reaches 3000 or more editors in all parts of the country.

A similar identity of committees has been effected in local fields, especially in Minnesota, and is typical of the desire to carry on everywhere a well-coördinated national campaign which shall embrace representation from all the principal local agencies and shall thus move forward with absolute harmony and unity of purpose to the accomplishment of its difficult but glorious ideal—the progressive reduction of the mortality from this historic scourge of mankind.

COMPARATIVE DEATH RATES.

The mortality statistics of the United States Census office for 1913 have recently become available and show that of the registration states Washington has the lowest death rate and disease incidence. The other registration states follow Washington in the subsequent order: Minnesota, Utah, Wisconsin, Colorado, Montana, Missouri, Kentucky, Indiana, Michigan, Ohio, Virginia, New Jersey, New York, Pennsylvania, California, Connecticut, Maine, Massachusetts, Rhode Island, Vermont, Maryland, North Carolina, New Hampshire.

The non-registration states in the union are the following: Illinois, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Wyoming, Idaho, Oregon, Nevada, South Carolina, Georgia, Florida, Alabama, Tennessee, Missis-

issippi, Arkansas, Louisiana, Oklahoma, Texas, New Mexico and Arizona.

In these non-registration states the following cities belong to the registration area: Birmingham, Mobile and Montgomery, Ala.; Wilmington, Del.; Jacksonville, Key West and Pensacola, Fla.; Atlanta, Augusta and Savannah, Ga.; Aurora, Belleville, Chicago, Decatur, Evanston, Jacksonville, Quincy and Springfield, Ill.; Atchinson, Coffeyville, Fort Scott, Hutchinson, Independence, Kansas City, Lawrence, Leavenworth, Parsons, Pittsburgh, Topeka, Wichita, Kan.; New Orleans, La.; Lincoln and Omaha, Neb.; Portland, Ore.; Charleston, S. C.; Nashville and Memphis, Tenn.; El Paso, Galveston and San Antonio, Tex.; Wheeling, W. Va.

Compared with other nations the United States in 1912 stood sixth in the percentage of its death rate. The countries which surpassed it were New Zealand, Australia, Denmark, England and Norway. The remaining countries followed the United States that year in the subsequent order: Sweden, Scotland, Prussia, Switzerland, Belgium, Ireland, Finland, France, Italy, Austria-Hungary, Spain, Serbia, Roumania, Chili.

Within recent years the most rapid decrease in the death rate has taken place in Holland, Prussia and Australia.

In 1912 The Hague had the lowest death rate in the world, 10.9. Amsterdam stood second with a rate of 11.2 and the remaining large cities of the world followed in subsequent order: Rotterdam, Sidney, Toronto, Turin, Dresden, Christiana, Brussels, London, Hamburg, Melbourne, New York, Copenhagen, Stockholm, Berlin, Munich, Chicago, Philadelphia, Vienna, Edinburgh, Prague, Milan, Boston and Paris.

In 1913 Seattle had the lowest death rate among the large American cities, 8.4. Spokane stood second with a rate of 8.9, and Portland, Oregon, third, 9.5. The remaining cities followed in subsequent order: St. Paul, Minneapolis, Oakland, Milwaukee, Grand Rapids, Cambridge, Paterson, Omaha, Denver, Cleveland, New York, (14th, rate 14.3), Newark, Jersey City, Rochester, Scranton, Kansas City, Bridgeport, St. Louis, Los Angeles, Chicago (23d, rate 15.1), Providence, Columbus, Philadelphia, Syracuse, Indianapolis, Buffalo, Worcester, Lowell, New Haven, San Francisco, Dayton, Toledo, Louisville, Boston.

The negroes have a much higher death rate than any other nationality or race.

The rank of the cities in which the negro population is more than 20% is as follows: Portsmouth, Va., 13.7; Durham, N.C., 14.1; Key West, 14.9; Others come in the order named: Roanoke, Atlantic City, Charlotte, N.C., Pensacola, Newport News, Greensboro, Knoxville, Washington, Birmingham, Atlanta, Alexandria, Nashville, Frankfort, Ky.; Lynchburg, Danville, Va.; Jacksonville, Fla.; Norfolk, Augusta, Henderson, Ky.; New Orleans, Paducah, Rich-

mond, Va.; Memphis, Winston-Salem, Mobile and Ashville.

The average death rate for cities having a large negro population is 18.3.

In 1913 the lowest death rate from diphtheria in American cities was 0.8 in Spokane. Other figures were: 1.9 at Birmingham, Ala.; 4.4 at Seattle; 5.3 at Portland, Ore.; 6 at Richmond Va.; 36.3 at Cleveland; 36.6 at Pittsburgh; 41.2 at Chicago; 43.9 at Grand Rapids and 57.6 at Detroit. The lowest scarlet fever death rate in 1914 was 0.6 at Birmingham, Ala., and at New Orleans. Other rates were 1.1 at Oakland, Calif.; 2 at Albany and Seattle, 2.2 at Kansas City, 21.8 at Fall River, 22.3 at Denver, 26.4 at Pittsburgh, 26.8 at Bridgeport, Conn., and 39.2 at Chicago.

In 1913 the greatest prevalence of smallpox occurred in these states in the following order: North Carolina, Utah, Montana, Minnesota, California and New Hampshire. The greatest incidence of diphtheria was 25.9 per hundred thousand in Pennsylvania, the least was 3.1 in Washington. Next to Washington came Montana, California, Colorado, Utah, Vermont and Minnesota. The lowest incidence of scarlet fever was 2.2 in Maine, next in Washington, Kentucky, Virginia, North Carolina, New Hampshire and California. The rate in Colorado was 17.2 and the highest was 282.4 in Montana.

The tuberculosis incidence rate was lowest in Utah, 41.5. Washington stood second with a rate of 74.9. Other rates were Michigan, 77.4; Wisconsin, 84.3; Minnesota, 88; Vermont, 88.3; Montana, 93.3; Maine, 96.2; New Hampshire, 98.9; Pennsylvania, 104; Ohio, 113; Massachusetts, 120.8; Connecticut, 121; Indiana, 125; Missouri, 126.7; Rhode Island, 133.4; New Jersey, 134.1; New York, 145.9; Virginia, 149.6; Colorado, 170.6; Maryland, 174.6; California, 175.6; Kentucky, 176.2, and North Carolina, 203.8.

The typhoid incidence rate was lowest in Vermont, 7.8. Massachusetts stood second with a rate of 7.9 and the rates in other states were as follows:—Rhode Island, 8.3; Wisconsin, 9, and New Jersey, 9.6. North Carolina is at the bottom of the list with a rate of 57.4. Kentucky was second from the bottom with 42.7; Virginia, third, 33.3; Indiana, 25.1; Missouri, 24.4, and Ohio, 24.

Of infant death rates, from diarrheal diseases, the lowest was 21.6 in Washington. Montana stood next with a rate of 38.6 and in other states the rate was: Minnesota, 41.3; Utah, 43; Colorado, 43.2; New Jersey, 89.9; New Hampshire, 96.2; Maryland, 101.1; Pennsylvania, 106.3, and North Carolina, 114.4. Among the various cities, the lowest death rate from this group of diseases was 9.8 at Portland, Ore. Other rates are 10.2 at Seattle, 24.9 at Spokane; Denver, 24.3, and 31.7 at San Francisco. Among the high rates are 138.5 at Scranton, 142 at Chicago, and 142.3 at Buffalo. The two

highest rates occur in two Massachusetts cities, 165.6 at Lowell and 224.2 at Fall River.

Compared with the total number of deaths, the total number of infant deaths under one year of age in several cities was as follows: Of each 1000 deaths in the United States in 1913, 179 were children under one year of age. The proportion in San Francisco was 90 out of each 1000; in Denver, 114; Los Angeles, 115; Portland, 125; Seattle, 126; Spokane, 135; Boston, 177; Philadelphia, 180; New York, 186; Chicago, 199.

The relative frequency of deaths from various causes may be illustrated by the statistics in Chicago for 1913:

The largest group is deaths of children under one year of age from all causes, 6,939; second, pneumonia, all forms, 4,832; third, consumption, 3,430; fourth, heart disease, 3,337; fifth, bowel trouble in children under two years of age, 3,329; sixth, Bright's disease, 2,697; seventh, violent deaths, excluding suicide, 2,113; eighth, cancer, 2,017; congenital debility and malformation (in the newly born), 1,363; 10th, cerebral hemorrhage (apoplexy), 1,167; 11th, diphtheria, 965; 12th, scarlet fever, 918; 13th, cirrhosis of the liver, 527; 14th, suicide, 517; 15th, tuberculosis, other forms than consumption, 468; 16th, appendicitis, 399; 17th, diabetes, 375; 18th, measles, 278; 19th, typhoid fever, 243; 20th, hernia and other forms of obstructions of the bowels, 217; 21st, puerperal fever, 198; 22d, rheumatism, 183; 23d, bronchitis, 182; 24th, meningitis, 176; 25th, puerperal affections other than fever, 165; 26th, erysipelas, 109; 27th, influenza, 101; 28th, whooping cough, 84.

Among the larger American cities 23 had, last year, a typhoid death rate lower than 10. Of these the best standing was taken by Cambridge, Mass., with a rate of 1.8. Bridgeport, Conn., stood second with a rate of 3.4 and Worcester, Mass., third with a rate of 3.7. New York City stood eighth with a rate of 6.2, Chicago thirteenth with a rate of 7.1, Philadelphia fourteenth with a rate of 7.4, and Boston nineteenth with a rate of 9.1.

Correspondence

ARTICLES OF FAITH CONCERNING CANCER.

NEW YORK, N. Y., July 1, 1915.

Mr. Editor: The enclosed "Articles of Faith" concerning cancer were presented by me at several of the sessions during the four-day Cancer Educational Campaign, under the auspices of the Vermont State Medical Society, June 8-11, 1915. They concluded a paper entitled "The Cancer Patient's Dilemma. A Plea for the Standardization of What the Public Should be Taught in the Campaign of Education Concerning Cancer," which I read at one of the sessions, and which appears in full in the Cancer number of the *New York Medical Journal*, July 3.

Dr. Jonathan M. Walnwright, Chairman of the

Committee on Health and Public Instruction, Subcommittee on Cancer of the Medical Society of the State of Pennsylvania, and a number of others who heard the paper or "Articles of Faith," have suggested that these Articles should be given wide circulation among the medical profession, as a platform, so to speak, upon which we can unite in teaching the public concerning cancer. They have urged that I send copies to the different medical journals for publication in the Cancer Number, or in the next issue.

In accordance with this suggestion, I am enclosing copy, to which I trust you will give space in your journal.

Yours very truly,

WM. SEAMAN BAINBRIDGE, M.D.

"ARTICLES OF FAITH" CONCERNING CANCER.

A PLATFORM UPON WHICH TO UNITE IN THE CAMPAIGN OF EDUCATION.

1. That the hereditary and congenital acquirement of cancer are subjects which require much more study before any definite conclusions can be formed concerning them, and that, in the light of our present knowledge, they hold no special element of alarm.

2. That the contagiousness or infectiousness of cancer is far from proved, the evidence to support this theory being so incomplete and inconclusive that the public need have no concern regarding it.

3. That the communication of cancer from man to man is so rare, if it really occurs at all, that it may be practically disregarded.

4. That those members of the public in charge of or in contact with sufferers from cancer with external manifestations, or discharges of any kind, need at most take the same precautionary measures as would be adopted in the care of any ulcer or open septic wound.

5. That in the care of patients with cancer there is much less danger to the attendant from any possible acquirement of cancer than there is of septic infection, or blood poisoning from pus organisms.

6. That in cancer, as in all other disease, attention to diet, exercise and proper hygienic surroundings is of distinct value.

7. That, notwithstanding the possibility of underlying general factors, cancer may, for all practical purposes, be at present regarded as local in its beginning.

8. That, when accessible, it may, in its incipency, be removed so perfectly by radical operation that the chances are overwhelmingly in favor of its non-recurrence.

9. That, when once it has advanced beyond the stage of cure, suffering in many cases may be palliated and life prolonged by surgical and other means.

10. That while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest present means of cure.

11. That among the many advances in and additions to cancer treatment, the improvements in and extensions of surgical procedure surpass those in any other line, and fully maintain the preëminent position of surgical palliation and cure.

12. That there is strong reason to believe that the individual risk of cancer can be diminished by the eradication, where such exist, of certain conditions which have come to be regarded as predisposing factors in its production.

13. That some occupations, notably working in pitch, tar, paraffin, anilin or soot, and with x-rays, if not safeguarded, are conducive to the production of cancer, presumably on account of the chronic irritation or inflammation caused.

14. That prominent among these predisposing factors, for which one should be on guard, are: general lowered nutrition; chronic irritation and inflammation; repeated acute trauma; cicatricial tissue, such as lupus and other scars, and burns; benign tumors—

warts, moles, nevi (birth-marks), etc.; also that changes occurring in the character of such tumors and tissues, as well as the occurrence of any abnormal discharge from any part of body, especially if blood-stained, are to be regarded as suspicious.

15. That while there is some evidence that cancer is increasing, such evidence does not justify any present alarm.

16. That suggestions which are put forward from time to time regarding eugenic, dietetic and other means of limiting cancer, should not be accepted by the public until definitely endorsed by the consensus of expert opinion. Such consensus does not exist today.

17. That so far as we know there is nothing in the origin of cancer that calls for a feeling of shame or the necessity of concealment.

18. That it will be promotive of good results if members of the public who are anxious about their health and those who wish to preserve it will, on the one hand, avoid assuming themselves to be sufferers from one or another dreadful disease, but, on the other hand, will submit themselves periodically to the family physician for a general overhauling.

19. That at all times and under all conditions there is much to be hoped for and nothing to be feared from living a normal and moderate life.

20. That the finding of any abnormal condition about the body should be taken as an indication for competent professional and not personal attention.

21. That watchwords for the public until "the day dawns" and the cancer problem is solved, are: Alertness without apprehension, hope without neglect, early and efficient examination where there is doubt, early and efficient treatment when the doubt has been determined.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JULY 3, 1915.

CONTRIBUTIONS.

| | |
|---|----------|
| Stamford Medical Association, Stamford, Ct. | \$ 25.00 |
| Buchanan County Med. Soc., St. Joseph, Mo. | 27.34 |
| Capt. W. H. Allen, M.C., U.S.A., Manila, P.I. | 10.00 |
| Yakima County Med. Soc., N. Yakima, Wash. | 25.00 |

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| Receipts for the week ending July 3d..... | \$ 87.34 |
| Previously reported receipts..... | 7457.00 |

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| Total receipts..... | \$7544.34 |
| Previously reported disbursements: | |
| 1625 standard boxes of food @ \$2.20.. | \$3575.00 |
| 1274 standard boxes of food @ \$2.30.. | 2930.20 |
| 353 standard boxes of food @ \$2.28.. | 804.84 |

Total disbursements.....\$7310.04

Balance\$ 234.30

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

APPOINTMENTS.

The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions:

Dr. James B. Murphy, hitherto an associate in the department of pathology and bacteriology has been made an associate member.

The following have been made associates:

Dr. Carrol G. Bull (pathology and bacteriology).
Dr. Frederick S. Jones (pathology and bacteriology).
Dr. Clarence J. West (chemistry).
Dr. Michael Heideberger (chemistry).
Dr. Frederick M. Allen (medicine).
Dr. Oswald T. Avery (bacteriology).
Miss Angelia M. Courtney (chemistry).
Dr. Eduard Uhlenhuth (experimental biology).

The following have been made assistants:

Dr. Harold K. Faber (pathology and bacteriology).
Mr. Chester H. Allen (chemistry).
Mr. James K. Senior (chemistry).
Mr. Glenn E. Cullen (chemistry).
Miss Mariam Vinograd (chemistry).

The following new appointments are announced:

Dr. R. Werner Marchand, assistant in the department of animal pathology.

Dr. Carl Ten Broeck, associate in the department of animal pathology.

Dr. Herbert D. Taylor, assistant in pathology and bacteriology.

Dr. Oswald H. Robertson, assistant in pathology and bacteriology.

Mr. Ernest A. Wildman, fellow in chemistry.

Dr. Reginald Fitz, assistant in medicine and assistant resident physician.

Dr. Arthur L. Meyer, assistant in physiology and pharmacology.

Dr. Robert M. Merrick, of Dorchester, Mass., has been appointed a member of the Massachusetts State Board of Charity.

RECENT DEATHS.

DR. VICTOR A. ELLSWORTH, who died of cardio-renal disease on July 5, at Boston, was born in Milford, N. Y., on April 20, 1846. He received the degree of M.D. in 1876 from the University of Buffalo, and after practicing for a time at East Otto, N. Y., removed to Boston, where in 1894 he became superintendent of the Washingtonian Home for Inebriates. He was a member of the American Medical Association, the New York State Medical Society, and the Massachusetts Eclectic Medical Society. He is survived by his widow, one daughter, and one son.

DR. JOSEPH REDFERN, of Marlborough, Mass., died of apoplexy at his home on July 1, aged 66 years. He was a graduate of Harvard College, the College of Physicians and Surgeons of New York in 1873, and joined The Massachusetts Medical Society in the same year, practising in his early days at Ashland, Mass. He also practised in Fall River, Hudson and Marlborough, Mass. He is survived by his widow.

DR. EDWARD MERRILL CURRIER of Brookline, Mass., who died of trauma in Quincy, Mass., on July 9, was born at Chelsea, Mass., in 1855. He received the degree of M.D. in 1881 from Boston University, and that of D.M.D. from Harvard in 1885. He is survived by his widow.

DR. CHARLES UPHAM SHEPARD, who died recently at Summerville, S. C., was born in New Haven, Conn., on Oct. 6, 1843. He obtained his preliminary education at Andover Academy and Yale College, and studied medicine at the University of Göttingen, Germany. He never practised his profession, but devoted himself to the study of chemistry of soils and fertilizers, and to the scientific cultivation of tea.